COLUMBIA RIVER BASIN
FISH AND WILDLIFE PROGRAM
ANNUAL IMPLEMENTATION WORK PLAN
FOR FISCAL YEAR 1993

BY

DIVISION OF FISH AND WILDLIFE
BONNEVILLE POWER ADMINISTRATION
P.O. BOX 3621
PORTLAND, OREGON 97208

September 1992

EXECUTIVE SUMMARY

The Columbia River Basin Fish and Wildlife Program Annual Implementation Work Plan (AIWP) for Fiscal Year (FY) 1993 presents Bonneville Power Administration's (BPA) plans for implementing the Columbia River Basin Fish and Wildlife Program (Program) in FY 1993. The AIWP focuses on individual Action Items found in the 1987 Program and subsequent amendments for which BPA has determined that it has authority and responsibility to implement. Each of the Action Item entries in the AIWP includes objectives, background, progress to date in achieving the objectives, and a summary of plans for implementation in FY 1993. Most Action Items are implemented through one or more BPA-funded projects. Each Action Item entry is followed by a list of completed, ongoing, and planned projects, along with objectives, results, schedules, and milestones for each project.

In October 1988, BPA and the Columbia Basin Fish and Wildlife Authority (CBFWA) initiated a collaborative and cooperative Implementation Planning Process (IPP). The IPP provided opportunities for the fish and wildlife agencies, Tribes, and other interested parties to be involved in planning FY 1993 Program implementation. This planning process contributed to the development of this year's AIWP. The joint BPA/CBFWA IPP is expected to continue in FY 1993.

The FY 1993 AIWP emphasizes continuation of 143 ongoing, or projected ongoing, Program projects, tasks, or task orders, most of which involve protection, mitigation, or enhancement of anadromous fishery resources. The FY 1993 AIWP also contains three new Program projects or tasks that are planned to start in FY 1993. Using the IPP, BPA will amend the FY 1993 AIWP to add the new projects that implement Phase Two and Phase Three Program amendment measures.

The continuing and new activities in FY 1993 are summarized briefly by Program or technical area:

Mainstem Passage: BPA-funded projects will continue to support the smolt marking and monitoring program, the Fish Passage Center, and management of the Water Budget (pp. 41-49). BPA will continue to implement seven projects in the Reservoir Mortality and Water Budget Effectiveness Research Area of Emphasis (pp. 133-1371, as agreed upon through ad hoc negotiation with the fishery agencies and Tribes. A new bypass evaluation project (p. 279) is expected to start in FY 1993.

Artificial Propagation: The aim of this Program area is primarily to investigate ways to increase the quality and quantity of fish produced in hatcheries. In FY 1993. BPA plans to continue implementing 11 ongoing Hatchery Effectiveness and Fish Disease Technical Work Group (TWG) Five-Year Work Plan research projects (pp. 138-146).

Natural Propagation: A total of 27 ongoing habitat and tributary passage projects in Section 703(c)(1) of the Program will continue or be completed in FY 1993 (pp. 57-80). These projects, located throughout Oregon, Idaho. and Washington, emphasize enhancement of anadromous fish spawning and

rearing habitat and improvement of passage conditions, with the goal of increasing production of naturally spawning stocks. A process for selection of new FY 1993 habitat projects is described under Action Item 4.2 (p. 55). Once the projects have been selected, the FY 1993 AIWP will be amended to reflect BPA's implementation plans.

Supnlementation : Six ongoing supplementation research projects from the Supplementation TWG Five-Year Work Plan will continue in FY 1993 (pp. 147-150). The goal of supplementation research is to improve programs for supplementing natural production areas with stocked fish, whether from hatchery or wild stocks, and to assess the potential of supplementation to increase natural production.

Resident Fish: The resident fish projects begun in FY 1992 or before (pp. 168-200) will continue, as will the sturgeon studies being carried out throughout the Basin (p. 180). BPA plans to begin implementing a Hungry Horse Dam mitigation project in FY 1992 (p. 188)

Wildlife: BPA will continue to implement the four ongoing wildlife mitigation projects under Action Item 8.12 (pp. 220-222). Upon Council approval, we expect to start Phase I (management planning activities) for seven additional wildlife mitigation projects in FY 1992 (pp. 222-224). BPA will place increasing emphasis on establishing wildlife settlement agreements in FY 1992, and we expect to have agreements in place in Idaho, Washington, and Oregon by mid-FY 1993.

Major Projects: This category includes major hatchery construction, passage improvement, and habitat enhancement projects implemented by BPA's Fish and Wildlife Project Management Branch. During FY 1993, the following activities will continue: final design of the Yakima/Klickitat Production Facilities (p. 99), development of the Master Plan for the artificial production facility or facilities to be located in northeastern Oregon (p. 108), preliminary design of the Net Perce Low-Capital Propagation Facilities (p. 118), design of juvenile monitoring and sampling facilities at Bonneville Dam (p. 270), and operation and maintenance of the Colville Hatchery (p. 168), Umatilla Hatchery (p. 113), Sherman Creek Hatchery (p. 172), and Spokane Tribal Hatchery (p. 172). New FY 1993 projects include two tasks associated with the Yakima/Klickitat Production Project (p. 106).

Planning Activities: The IPP will continue to guide BPA's Program implementation in FY 1993 (p. 29), and BPA will continue to chair the six IPP Scoping Groups. BPA will also participate in the Council-managed System and Subbasin Planning and System Monitoring and Evaluation programs (p. 33). The Coordinated Information System established by the Council continues to be funded by BPA (p. 158).

Phase One Program Amendments: In August 1991, the Council amended a number of priority salmon and steelhead production and habitat actions into the Program as part of the Phase One amendment process. These

actions have also been referred to as the Early Implementation Package (EIP). A new section of the AIWP (pp. 241-271) contains BPA's plans for implementing the Phase One, or EIP, actions for which BPA is responsible.

Phase Two/Three Program Amendments: In December 1991, the Council completed the second phase of Program amendments that concentrated on mainstem fish survival and on harvest. Completion of a third phase of Program amendments is expected in August 1992. Once implementation planning has been completed, BPA will amend the FY 1993 AIWP to include the Phase Two and Phase Three projects that will be initiated in FY 1992 and FY 1993.

Non-Proaram. Internal Support Projects: BPA's Division of Fish and Wildlife will also conduct a number of activities not included in the Council's Program. BPA's contract with Resources for the Future, for example, is funded by BPA to improve our ability to assess the cost effectiveness of the Program. Some of the other non-Program activities funded by BPA are the coordination of the IPP, technical assistance to the Division of Fish and Wildlife, and Idaho water rental projects. To help the public better understand what BPA is doing, Appendix A (p. A-1) describes the non-Program, internal support projects currently funded by BPA.

Endanaered Species Act Implementation: BPA currently funds a number of projects to carry out its Federal responsibilities under the Endangered Species Act (ESA). BPA will use, to the extent practicable, the IPP to plan implementation of ESA projects. In all cases, BPA will keep the Policy Review Group informed regarding all of the ESA activities we are pursuing. Appendix B (p. A-15) describes the ESA projects that BPA is currently implementing.

Response to Comments: See Appendix C.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

I. INTRODUCTION

General

The Columbia River Basin Fish and Wildlife Program (Program) was developed by the Northwest Power Planning Council (Council) in accordance with Public Law 96-501, the Pacific Northwest Electric Power Planning and Conservation Act (Act). The purpose of the Program is to guide the Bonneville Power Administration (BPA) and other Federal agencies in carrying out their responsibilities to protect, mitigate, and enhance fish and wildlife of the Columbia River Basin. The Act explicitly gives BPA the authority and responsibility to use the BPA fund for these ends, to the extent that fish and wildlife are affected by the development and operation of hydroelectric generation in the Columbia River Basin. The Columbia River Basin Fish and Wildlife Program Annual Implementation Work Plan (AIWP) presents BPA's plans for implementing the Program during Fiscal Year (FY) 1993.

The AIWP reflects the primary goals of the Council's Action Plan (Section 1400 of the Program): to provide a solid, timely, and focused basis for budgeting and planning. In addition, the AIWP provides a means to judge the progress and the success of Program implementation. The AIWP is based on the outline developed by the Policy Review Group (PRG) during Step 1 of the annual cycle of the Implementation Planning Process (IPP), which is described in Section III.

This AIWP has been organized and written to meet the specific needs of Program Action Items 10.1-10.3. The AIWP includes schedules with key milestones for FY 1992 and beyond, and addresses the Action Items assigned to BPA in Section 1400 of the 1987 Program and in subsequent amendments.

All Program projects discussed in the AIWP are listed in Tables 1 and 2 according to their status as of March 6, 1992. Table 1 (p. 3) lists completed, ongoing, and deferred Program projects. Table 2 (p. 17) lists FY 1993 new-start projects. In addition, BPA's internal support projects and Endangered Species Act projects are listed in Tables 3 (p. 19) and 4 (p. 21), respectively. "Ongoing" status indicates that the project started in FY 1992 or before and that it is expected to continue through part or all of FY 1993. "Deferred" means that BPA implementation has been postponed to FY 1994 or later. "Completed" indicates completion during FY 1992. "New" denotes projects planned for BPA implementation in FY 1993.

A number of projects are expected to begin in late FY 1992 and have been listed in Table 1 of the AIWP as "Projected FY '92 Starts," based on their projected start dates. Several other projects are expected to end in late FY 1992. These projects have been listed in Table 1 as "Projected FY '92 Completions," based on their projected completion dates.

FY 1993 AIWP

The AIWP continues to focus on individual Program Action Items. Each Action Item entry is accompanied by the relevant Program measure language (or abstract), a statement of BPA's objectives in implementing the Action Item, a discussion of background and progress to date, and a summary of implementation plans for FY 1993 to accomplish the Action Item.

The AIHP also presents plans for individual project implementation. Project level reporting has been condensed to tabular form wherever possible. Tables are subdivided into:

I. Completed Projects

II. FY 1992 Ongoing Projects

III. Deferred Projects (if applicable)

IV. New Projects

Within each of these four categories, appropriate information is provided, e.g., Project Number, Project Title, Date Completed, Results/Conclusions, Project Status, Schedule and Milestones, Anticipated Start Date, Reason for Deferral, and Project Officer.

Non-Program Activities

BPA also funds some fish and wildlife activities that are not in the Council's Program. Appendix A describes BPA's non-Program, internal support projects. These projects were not subject to review by the Policy Review Group and have been included in the AIWP to help the public to better understand what BPA is doing. Appendix B describes BPA's ongoing Endangered Species Act projects.

Abbreviations Used

The AIHP uses many abbreviations to identify various agencies, organizations, and technical terms. Table 5 (p. 23) lists the full name of each group, or the technical term, and the corresponding abbreviation used in the AIHP.

TABLE 1. ONGOING, DEFERRED, AND COMPLETED PROGRAM PROJECTS

PROJECT STATUS DEFINITIONS:

ONGOING = BPA is currently implementing project, i.e., there is a signed agreeaent. and project is expected to continue into FY 1993.

FY 1992 START = There is no signed agreement yet, but BPA expects to start implementing project in FY 1992.

DEFERRED = Project was in FY 1992 AIWP; BPA implementation has been postponed to a future fiscal year beyond FY 1993.

COMPLETED = Project completed in FY 1992. (Projects completed before FY 1992 are not listed in the FY 1993 AIWP.)

FY 1992 COMP = Project is expected to be completed in FY 1992.

BPA SERVICE AREA CODES:

L = Lower Columbia Area

T = Puget Sound Area

U = Upper Columbia Area

W = Snake River Area

TABLE 1

FY 1993 AIWP - PROGRAM PROJECTS

ONGOING, DEFERRED, AND COMPLETED PROJECTS

ACTION ITM	TECHNICAL SUBJECT	PROJECT NUMBER	STATUS	BPA AREA	RPA	TITLE
2.1	WATER BUDGET MANAGEMENT	87-127	ONGOING	L	F1101/1121	SMOLT MONITORING AND WATER BUDGET PROGRAM
		83-6	ONGOING	L	FIIOI	OPERATION/MAINTENANCE OF BPA FISH TAGGING TRAILER
2.2	SMOLT MONITORING	83-323	ONGOING	U	F1101/1121	SHDLT MONITORING/WATER BUDGET
		84-14	DNGOING	L	F1101/1121	SMOLT MONITORING/WATER BUDGET
		87-401	ONGOING	T	FIIOI	SMOLT SURVIVAL AND TRAVEL TIHE
		91-28	ONGOING	U/W	FIIOI	PIT-TAGGING OF WILD CHINOOK IN IDAHO AND OREGON
3.1	CONDUIT DESIGN	NONE				
4.1	ELLENSBURG SCREENS	NONE				
4.2	HABITAT AND PASSAGE IMPROVE-MENT	81-108	ONGOING	W	F1501	WARM SPRINGS HABITAT IMPROVEMENT
		83-359	ONGOING	W	F1107	SALMON RIVER HABITAT ENHANCEMENT
		83-415	FY 1992 COMP	W	F1107	ALTURAS LAKE
		83-436	ONGOING	W	F1501	THREE MILE DAH PASSAGE IHPROVEHENTS - O&M
		84-5	FY1992 COMP	U	F1107	CLEARWATER RIVER SUBBASIN
		84-8	ONGOING	w	FIIII	JDHN DAY RIVER SUBBASIN
		84-9	ONGOING	W	FIIII	GRANDE RONDE RIVER SUBBASIN
		84-11	ONGOING	L	F1109	WILLAMETTE/CLACKAMAS RIVER SUBBASIN
		84-21	ONGOING	w	FIIII	MAINSTEM, HIDDLE FORK, JOHN DAY RIVER
		84-22	DNGOING	W	F1501	HIDDLE FDRK & TRIBUTARIES, JOHN DAY RIVER
		84-23	ONGOING	W	F1501	CAMAS CREEK, IDAHO
		84-24	ONGOING	w	F1501	MARSH, ELK, UPPER SALMON RIVER, IDAHO
		84-25	ONGOING	W	FIIII	GRAND RONDE HABITAT IMPROVEMENT PROJECT

TABLE 1 (cont.)
FY 1993 AIWP - PROGRAH PROJECTS

ONGOING, DEFFRRED. AND COMPLETED PROJECTS

ACTION ITEH	TECHNICAL SUBJECT	PROJECT NUMBER	STATUS	BPA AREA	RPA	TITLE
4.2	HABITAT AND PASSAGE IMPROVE-MENT (cont.)	84-62	FY 1992 COMP	W	F1109	TROUT CREEK RIPARIAN ENHANCEMENT
		85-71	ONGOING	W	F1501	SOUTH FORK JOHN DAY RIVER & IZEE FALLS FEASIBILITY STUDY
		86-75	ONGOING	U	F1501	LITTLE NACHES RIVER PASSAGE
		86-79-1	ONGOING	W	F1109	FIFTEENMILE CREEK - PHASE IV AND V
		86-124	ONGOING	W	F1501	LITTLE FALL CREEK PASSAGE FACILITIES MAINTENANCE
		87-100	ONGOING	W	FIIIO	UHATILLA HABITAT IMPROVEMENT - USFS
		87-100-I	ONGOING	W	FIIIO	UMATILLA HABITAT IMPROVEMENT - CTUIR
		87-100-2	ONGOING	W	FIIIO	UMATILLA HABITAT IMPROVEMENT - ODFW
		87-104-I	ONGOING	W	F2105	PASSAGE IMPROVEMENTS AT STANFIELD DIVERSION
		87-104-2	ONGOING	W	F2105	WESTLAND NON-FISH IMPROVEMENTS
		87416	ONGOING	W	F1501	MAXWELL DIVERSION IMPROVEMENTS - O&M
		87416-1	ONGOING	W	F2105	COLD SPRINGS DIVERSION IMPROVEMENTS - O&M
		88-22	ONGOING	w	1110	UHATILLA BASIN TRAP AND HAUL
		88-116	ONGOING	W	F1501	TROUT CREEK O&M
		89-24-I	ONGOING	W	FIIIO	UMATILLA BASIN PASSAGE FACILITY EVALUATION
		91-15	ONGOING	W	F11PM	DEVELOPMENT OF STREAM HABITAT IHPROVEHENT STRATEGIES/ STANDARDS
		91-73	ONGOING	W	F1112	IDAHO HABITAT EVALUATION/IMPROVEMENT PROJECTS
4.3	ROZA	NONE				
4.4	PROSSER	NONE				
4.5	YAKIMA PASSAGE	85-62	ONGOING	W	F1119	PASSAGE IHPROVEHENT EVALUATION
		89-90	ONGOING	W	F2113	YAKIMA PASSAGE PHASE 2 SCREENS PREDESIGN
		91-57	ONGOING	T	F2113	YAKIHA PHASE 2 SCREENS FABRICATION
		92-15	ONGOING	U	F2116	DRYDEN SCREENS DESIGN AND CONSTRUCTION

TABLE 1 (cont.)
FY 1993 AIWP – PROGRAM PROJECTS

ONGOING, DEFERRED, AND COMPLETED PROJECTS

ACTION ITEM	TECHNICAL SUBJECT	PROJECT NUMBER	STATUS	BPA AREA	RPA	TITLE
4.6	UMATILLA RIVER	89-27	ONGOING	W	F1110	PROVIDE POWER FOR USBR COLUMBIA RIVER PUMPS
	WATER EXCHANGE	89-27-1	ONGOING	W	F1110	STANFIELD WATER RELEASE
4.6.1	UHATILLA NON-STRUCTURAL WATER MEASURES	NONE				
4.14.1	JOHN DAY ACCLIMATION	83-313	FY 1992 COMP	L	F1113	NET PEN REARING OF FALL CHINOOK SALMON
4.15.1	YAKIHA HATCHERY (Tasks)	8645	ONGOING	U	F2108	YAKIMA HATCHERY – CLE ELUH PROJECT
		88-115	ONGOING	W	F2108	YAKIMA/KLICKITAT HATCHERY DESIGN AND CONSTRUCTION
		88-120	ONGOING	W	F2108	YAKIHA AND KLICKITAT NATURAL/ARTIFICIAL PRODUCTION PROGRAM
		88-123	ONGOING	W	F2108	YAKIHA HATCHERY COORDINATION – ROZA
		89-82	ONGOING	W	F2108	YAKIHA HATCHERY EXPERIMENTAL DESIGN-WDF
		89-89	ONGOING	W	F2108	YAKIMA/KLICKITAT RADIOTELEHETRY STUDY
		89-105	ONGOING	W	F2108	SPECIES INTERACTION STUDY
		90-58	ONGOING	W	F2108	PROJECT LEADER FUNCTION
		90-64	FY 1992 START	W	F2108	KLICKITAT RIVER HONTITORING
		90-65	ONGOING	W	F2108	JUVENILE MONITORING TRAP CALIBRATION
		90-69	ONGOING	W	F2108	YAKIMA HATCHERY FINAL DESIGN
		90-71	ONGOING	W	F2108	MOLT LOSS EVALUATION
		9145	ONGOING	W	F2108	ADULT TRAP PREDESIGN
		9148	ONGOING	W	F2108	EVALUATION OF ENVIRONMENTAL IHPACTS OF YKPP
		91-55	ONGOING	W	F2108	SUPPLEMENTATION FISH DUALITY
		91-59	ONGOING	W	F2108	HABITAT INVENTORY AND FOOD ABUNDANCE DATA COLLECTION
		92-5	DEFERRED	W	F2108	EVALUATION OF YAKIMA PRODUCTION PROJECT
		92-14	FY 1992 START	W	F2108	HABITAT DEFINITION. ASSESSMENT, AND IMPROVEMENT
		92-21	ONGOING	W	F2108	EXPERIMENTAL DESIGN DMLOPHENT

TABLE 1 (cont.)
FY 1993 AIWP - PROGRAM PROJECTS

ONGOING, DEFERRED, AND COMPLETED PROJECTS

ACTION ITEM	TECHNICAL SUBJECT	PROJECT NUMBER	STATUS	BPA AREA	RPA	TITLE
4.16.1	NORTHEAST OREGON	88-53	ONGOING	W	F2612/1121	NE OREGON ARTIFICIAL PRODUCTION FACILITIES - SITING AND
4.16.2	SPRING CHINOOK					CONCEPTUAL DESIGN
		88-53-1	ONGOING	W	F2612	NE OREGON ARTIFICIAL PRODUCTION FACILITIES - MASTER PLANS
		88-53-2	ONGOING	W	F2612	NE OREGON ARTIFICIAL PRODUCTION FACILITIES - MASTER PLANS
		88-53-3	ONGOING	W	F2612	NE OREGON ARTIFICIAL PRODUCTION FACILITIES - MASTER PLANS
		88-53-4	ONGOING	W	F2612	NE OREGON ARTIFICIAL PRODUCTION FACILITIES - MASTER PLANS
4.17.1	UMATILLA RELEASE AND COLLECTION	83-435	ONGOING	W	F1501	MINTHORN AND BONIFER SPRINGS ACCLIHATION FACILITIES
4.17.2	UHATILLA HATCHERY	84-33	ONGOING	W	F2106	UMATILLA HATCHERY CONSTRUCTION AND O&M
		84-33-3	COMPLETED	W	F2106	UMATILLA HATCHERY TRIBAL FISH CULTURE TRAINING
		90-5	ONGOING	W	F1121/2106	UMATILLA HATCHERY MONITORING AND EVALUATION
		91-14	ONGOING	W	F2106	UMATILLA SATELLITE FACILITIES
		92-XXX	FY 1992 START	W	F2106	UMATILLA RIVER NATURAL PRODUCTION HONITORING AND EVALUATION
4.17.3	NEZ PERCE HATCHERY	83-350	ONGOING	U	F2107	NEZ PERCE LOU-CAPITAL PRODUCTION FACILITIES
		88-126	ONGOING	U	F2107	NEZ PERCE TECHNICAL SUPPORT
4.17.4	CLEARWATER STUDY	88-15	FY 1992 COMP	U	F1107	MAINSTEM CLEARWATER RIVER STUDY
4.17.5	WILLAMETTE RIVER SPRING CHINOOK	NONE				
4.17.6	PELTON DAM	89-29	ONGOING	W	F1113	PROPAGATION IN PELTON DAM LADDER

TABLE 1 (cont.)
FY 1993 AIWP - PROGRAM PROJECTS

ONGOING, DFFERRED, AND COMPLETED PROJECTS

ACTION ITM	TECHNICAL SUBJECT	PROJECT NUMBER	STATUS	BPA AREA	RPA	TITLE
4.21	UPPER COLUMBIA HATCHERY RELEASE	NONE				
5.1	KNOWN STOCK ELECTROPHORESIS	NONE				
6.1	TECHNICAL WORK GROUPS	NONE				
6.2	RESEARCH AREAS OF EMPHASIS					
	RES MORT/WB	82-3	ONGOING	T	FIIOI	MAGNITUDE/DYNAMICS OF PREDATOR-CAUSED MORTALITY ON JUVENILE SALMONIDS
		83-319	ONGOING	T	FIIOI	PIT TAG RESEARCH
		87413-2	ONGOING	T	FIIOI	ANALYSIS OF HISTORIC DATA FOR ADULT AND JUVENILE SALMONIDS
		86-118 (TO 10)	FY 1992 COMP	T	F11PM	FEASIBILITY OF SATISFYING MODEL ASSUHPTIONS OF THE BURNHAM/ANDERSON FISH SURVIVAL ESTIMATION TECHNIQUE
		88-141	COMPLETED	T	FIIOI	USE OF AOVANCED PHOTOPERIOD TO ACCELERATE SMOLTIFICATION
		89-107	ONGOING	T	FIIOI	EPIDMIOLOGICAL METHODS FOR QUANTIFYING SURVIVAL RELATIONSHIPS FROM PIT TAG RELEASES OF SMOLTS
		90-77	ONGDING	L	F1122	DEVELOPMENT OF A SYSTEM-WIDE PREDATOR CONTROL PROGRAM
		90-78	ONGOING	L	F1122	SYSTEM-WIDE SIGNIFICANCE OF PREDATION ON JUVENILE SALHONIDS IN COLUMBIA AND SNAKE RIVER RESERVOIRS
		91-17	ONGOING	W	FIIOI	INVESTIGATION OF FACTORS AFFECTING JUVENILE WILD SPRING CHINOOK SALMON ABOVE LOWER GRANITE DAM

TABLE 1 (cont.)
FY 1993 AIWP - PROGRAM PROJECTS

ONGOING, DEFERRED, AND COMPLETED PROJECTS

ACTION ITEM	TECHNICAL SUBJECT	PROJECT NUMBER	STATUS	BPA AREA	RPA	TITLE
	FISH DISEASE	88-152	ONGOING	L	F1113	INFECTIOUS HEHATOPOIETIC NECROSIS VIRUS RESEARCH
		89-31	ONGOING	L	F1113	CONTROL OF BACTERIAL KIDNEY DISEASE
		89-32	OMGOING	U	F1113	REGISTRATION OF ERYTHROMYCIN
		89-54	OMGOING	L	F1113	RESEARCH DN ANTIFUNGAL COHPOUNDS
		89-81-2	ONGOING	L	F1113	ERYTHROCYTIC INCLUSION BODY SYNDRM ETIOLOGY
		91-22	ONGOIMG	T	F1121	HATCHERY SORTING FOR BKD
	HATCHERY EFF	88-160	ONGOING	L	F1113	BIO-ENGINEERING EVALUATION OF OXYGEN SUPPLEMENTATION HIGRATORY
		88-I 60-3	FY 1992 COMP	L	F1113	CHARACTERISTICS OF SPRING CHINOOK IN WILLAMETTE RIVER
		88-163	ONGOING	T	F1113	EFFECTS OF CODED WIRE TAGGING ON SPRING CHINOOK
		89-30	ONGOING	T	F1113	EVALUATION OF PRE-RELEASE TEMPERATURE ACCLIMATION
		89-46	ONGOING	T	F1113	SPRING CHINOOK SMOLT QUALITY ASSESSMENT
		89-81-3	ONGOING	L	F1113	MODELING OPTIHIZED HATCHERY PRODUCTION
	SUPPLEMENTATION	89-96	ONGOIMG	T	F1114	GENETIC MONITORING AND EVALUATION PROGRAM FOR SUPPLEMENTED POPULATIONS OF SALMON AND STEELHEAO IN THE COLUMBIA BASIN
		89-97	ONGOING	W	F1114	EFFECTIVENESS OF SUPPLEMENTING IMNAHA RIVER STEELHEAD WITH HATCHERY SMOLTS AND EFFECTS ON NATURAL PRODUCTION PERFORMANCE. GENETIC CHARACTERISTICS, AND LIFE HISTORY CHANGES
		89-98	ONGOING	W/U	F1114	EFFECTIVENESS OF SUPPLEMENTATION STRATEGIES AND ASSESSMENT OF INTERACTIONS BETWEEN HATCHERY FISH AND NATURAL FISH IN SALMON AND CLEARWATER BASINS
		90-52	ONGOING	T	F1114	PERFORMANCE/STOCK PRODUCTIVITY IHPACTS OF HATCHERY SUPPLEMENTATION
		90-53	ONGOIMG	W	F1114	SOUTHEAST WASHINGTON SPECIES INTERACTION STUDIES
		90-55	ONGOING	W	F1114	IMPACTS OF SUPPLEMENTATION ON STOCK PRODUCTIVITY AND PERFORMANCE IN SALMON RIVER

TABLE 1 (cont.)
FY 1993 AIWP - PROGRAM PROJECTS

ONGOING, DEFERRED, AND COMPLETED PROJECTS

ACTION ITEH	TECHNICAL SUBJECT	PROJECT NUMBER	STATUS	BPA AREA	RPA	TITLE
6.3	HATCHERY DATA BASE	(See Project 88-108-1 under Action Item 6.10)				
6.4	NATURAL PRODUCTION DATA BASE	(See Project 88-108-I under Action Item 6.10)				
6.5	HIM PRIORITY PROJECTS	NONE				
6.10	SYSTEH MONITORING AND EVALUATION	88-108-I	ONGOING	L	F11PM	COORDINATED INFORMATION SYSTEH (CIS)
		88-108-2	COMPLETED	L	F11PM	EPA/USGS HAPPING SYSTEM FDR CIS
		89-104	ONGOING	L	F11PM	HISTORICAL DATA BASE
6.12	COORDINATION AND CONSULTATION	NONE				
7.1	COLVI LLE HATCHERY	85-38	ONGOING	U	F1501	COLVILLE HATCHERY OPERATION AND MAINTENANCE
7.2	COEUR D'ALENE	9044	ONGOING	U	F1202	STREAM SURVEY, HATCHERY, HABITAT IMPROVEMENTS, AND MONITORING
7.3	KOKANEE SALMON HATCHERIES	88-62	COMPLETED	U	F2203	SPOKANE TRIBAL HATCHERY - GALBRAITH SPRINGS
		9146	ONGOING	U	F1501	SPOKANE TRIBAL HATCHERY O&M
		9147	ONGOING	U	F1501	SHERMAN CREM HATCHERY O&M
7.4	LAKE RDOSMLT	88-63	ONGOING	U	F1204	LAKE RDOSMLT MONITORING PROGRAM
		90-18	ONGOING	U	F1204	LAKE RDOSMLT HABITAT IMPROVEMENT PROJECTS

TABLE 1 (cont.)
FY 1993 AIWP - PROGRAH PROJECTS

ONGOING, DEFERRED, AND COMPLETED PROJECTS

ACTION ITEH	TECHNICAL SUBJECT	PROJECT NUMBER	STATUS	BPA AREA	RPA	TITLE
7.5	KOOTENAI INDIAN RESERVATION	88-64	ONGOING	U	F1203	DESIGN/CONSTRUCT/OPERATE STURGEON HATCHERY
7.6	KOOTENAI RIVER	88-65	ONGOING	U	F1203	ASSESS IHPACTS OF WATER LEVEL FLUCTUATIONS
7.7	KALISPEL RESERVATION	NONE				
7.10	FUND PROJECTS	88-156	ONGOING	W	F1202	DUCK VALLEY RESIDENT FISH PROJECT
		91-27	ONGOING	W	F2601	FEASIBILITY STUDY - HATCHERY PRODUCTION ABOVE HELLS CANYON
		92-10	ONGOING	W	F1202	FORT HALL BOTTMS HABITAT ENHANCEMENT
7.11	HONTANA PROJECTS	91-19	FY 1992 START	W	F1201	HUNGRY HORSE FISHERIES LOSS MITIGATION
7.12	STURGEON	86-50	ONGOING	L/W	F1203	STURGEON STATUS AND HABITAT REQUIREMENTS
—— PEND	OREILLE HATCHERY	85-339	ONGOING	U	F1202	KOKANEE STOCK STATUS AND EVALUATION OF CABINET GORGE HATCHERY
7.13	KOOTENAI RIVER MATERIALS REMOVAL	NONE				
7.14	DWORSHAK DAM	87-99	FY 1992 COMP	U	F1202	DWORSHAK DAH IMPACTS ASSESSMENT/KOKANEE/LIMNOLOGY
	LHPACTS ASSESSMENT	87-407	FY 1992 COMP	U	F1202	DWORSHAK IMPACTS ASSESSMENT/RAINBOW/SMALLMOUTH BASS

TABLE 1 (cont.)
FY 1993 AIWP – PROGRAM PROJECTS

ONGOING, DEFERRED, AND COMPLETED PROJECTS

ACTION ITEM	TECHNICAL SUBJECT	PROJECT NUMBER	STATUS	BPA AREA	RPA	TITLE
7.15	DRAWDOWN	83465	ONGOING	U	F1201	HUNGRY HORSE RESERVOIR LEVELS
	RECOMMENDATIONS	83-467	ONGOING	U	F1201	LIBBY RESERVOIR LEVELS
——	MITIGATION STATUS REPORTS/ CONSULTATIONS	NONE				CONSULTATIONS AMONG AFFECTED PARTIES SHOULD BEGIN
8.1	LOSS STATEMENTS	90-51	ONGOING	U	F1301	CLEARWATER RIVER OTTER STUDY
8.2	LOSS STATEMENT CONSULTATIONS	NONE				
8.3	MITIGATION PLANS	NONE				
8.4-	LIBBY DAM	8843	COMPLETED	U	F1301	LIBBY WILDLIFE HABITAT ENHANCEMENT
8.7	1987-1991	9049	FY 1992 COMP	U	F1301	LIBBY/HUNGRY HORSE WILDLIFE PROJECT
8.8-	HUNGRY HORSE	88-I 13	ONGOING	U	F1301	HUNGRY HORSE WILDLIFE ENHANCEMENT
8.10	1987-1991	89-23	ONGOING	U	F1301	MONTANA WILDLIFE HABITAT PROTECTION
8.11	PUBLIC INVOLVEMENT	NONE				

TABLE 1 (cont.)
FY 1993 AIUP - PROGRAM PROJECTS

ONGOING, DEFERRED, AND COMPLETED PROJECTS

ACTION ITEH	TECHNICAL SUBJECT	PROJECT NUMBER	STATUS	BPA AREA	RPA	TITLE
8.12	WILDLIFE MITIGATION	90-91	COMPLETED	U	F1301	DWORSHAK OLD GROWTH
		91-60	ONGOING	U	F1301	PEND OREILLE WETLANDS
		9141	ONGOING	U	F1301	PYGMY RABBIT/TRACY ROCK SHARP TAIL GROUSE
		91-62	ONGOING	U	F1301	BLUE CREEK WINTER RANGE
		9143	ONGOING	W	F1301	SOUTH FORK SNAKE RIVER/PALISADES BALD EAGLE
		92-XXX	FY 1992 START	U	F1301	LAKE PEND DREILLE WETLANDS
		92-XXX	FY 1992 START	L	F1301	AMAZON/WILLOW CREEK
		92-XXX	FY 1992 START	W	F1301	CAMAS PRAIRIE
		92-XXX	FY 1992 START	U	F1301	PEREGRINE FALCON REINTRODUCTION
		92-XXX	FY 1992 START	U	F1301	HELLSGATE WINTER RANGE
		92-XXX	FY 1992 START	L	F1301	VANCOUVER LOWLANDS
		92-XXX	FY 1992 START	W	F1301	LOWER YAKIMA VALLEY
		91-78	ONGOING		F1301	BURLINGTON BOTTOMS
8.13	MONITORING AND EVALUATION	NONE				
——	TRUST FUND	89-52	ONGOING	U	F1301	MONTANA WILDLIFE TRUST AGREEMENT
9.3	CUMULATIVE EFFECTS	NONE				
9.4	DEMO - TURBINE INTAKE SCREEN	NONE				

TABLE 1 (cont.)
FY 1993 AIWP - PROGRAM PROJECTS

ONGOING, DEFERRED, AND COMPLETED PROJECTS

ACTION ITEM	TECHNICAL SUBJECT	PROJECT NUMBER	STATUS	BPA AREA	RPA	TITLE
1.1 (P1)	WATER DIVERSION SCREENING/PASSAGE	92-28	ONGOING	W	F1121	REGIONAL FISH SCREENING OVERSIGHT COMMITTEE
1.2 (P1)	STARBUCK DAM	92-25	FY 1992 START	U	F1121	STARBUCK PASSAGE IMPROVEMENTS
2.1 (P1)	SNAKE RIVER SOCKEYE REBUILDING	90-93	ONGOING	U	F1121	GENETIC ANALYSES OF ONCORHYNCHUS NERKA
		91-71	ONGOING	W	F1121	IDAHO SOCKEYE SALMON RESEARCH AND RECOVERY
		91-72	ONGOING	W	F1121	SOCKEYE SALMON HABITAT AND LIMNOLOGIC RESEARCH
		92-XXX	FY 1992 START	W	----	REDFISH LAKE SOCKEYE SALMON CAPTIVE BROODSTOCK REARING AND RESEARCH
2.2 (P1)	PROTECTING ENDEMIC SPRING CHINOOK	(Implemented through Project 88-53, Action Item 4.16.1 - 4.16.2)				
2.3 (P1)	PORTABLE TRAPPING SYSTEMS	(Implemented through Project BB-53, Action Item 4.16.1 - 4.16.2)				
2.4 (P1)	MINIMIZE IHPACTS OF HATCHERY FISH	9243	ONGOING	L	F1121	INTEGRATED HATCHERY OPERATIONS TEAM
2.5 (P1)	HARKING HATCHERY SALMON	92-XXX	FY 1992 START	L	F1121	MASS HARKING OF HATCHERY SALMON
2.6 (P1)	RINGOLD HATCHERY	92-XXX	FY 1992 START	W	----	RINGOLD HATCHERY WATER RIGHTS ACQUISITION

(P1) = Phase One Program Amendment Measure

TABLE 1 (cont.)
FY 1993 AIWP - PROGRAH PROJECTS

ONGOING, DEFERRED. AND COMPLETED PROJECTS

ACTION ITEH	TECHNICAL SUBJECT	PROJECT NUMBER	STATUS	BPA AREA	RPA	TITLE
2.7 (PI)	SNAKE RIVER FALL CHINOOK GENETIC STRUCTURE	92-XXX	FY 1992 START	W/U	F1121	UPSTREAH PASSAGE, SPAWNING, AND STOCK IDENTIFICATION OF FALL CHINOOK IN THE SNAKE RIVER AND TRIBUTARIES
3.1 (PI)	MODEL WATERSHEDS	NONE				
4.1 (P1)	SNAKE RIVER FALL CHINOOK STUDY	91-29	ONGOING	U	F1121	EARLY LIFE HISTORY REQUIREMENTS OF SUBYEARLING FALL CHINOOK IN COLUMBIA BASIN
4.2 (PI)	PIT TAG DETECTION FACILITIES	91-40	FY 1992 START	L	F260 1	BONNEVILLE DAM JUVENILE PIT TAG DETECTION FACILITY
		91-64	ONGOING	U	F1121	LITTLE GOOSE/LOWER HONUHENTAL PIT TAG FACILITY
----	PROGRAM-RELATED, NONHEASURE PROJECTS	82-13	ONGOING	U	FIIOI	CODED-WIRE TAG RECOVERY
		86-54	COMPLETED	T	F1113	FISH HEALTH MONITORING IN WASHINGTON - WDF
		87-I 17	FY 92 COHP	W	F1113	FISH HEALTH MONITORING IN IDAHO
		87-I 18	FY 92 COHP	L	F1113	FISH HEALTH MONITORING IN OREGON
		87-I 19	FY 92 COHP	L	F1113	FISH HEALTH HDNITORING - USFWS
		89-20	ONGOING	L	F1101	AIRLIFT FABRICATION
		90-80	ONGOING	L	FIIOI	COLUMBIA RIVER BASIN PIT TAG INFORMATION SYSTEM (PTAGIS)

(PI) = Phase One Program Amendment Heasure

(VS6-PJSP-1518W)

TABLE 2. NEW FY 1993 PROGRAM PROJECTS

BPA SERVICE AREA CODES:

L = Lower Columbia Area

T = Puget Sound Area

U = Upper Columbia Area

W = Snake River Area

TABLE 2
FY 1993 PROGRAM PROJECTS

NEW PROJECTS IN FY 1993

ACTION ITEM	TECHNICAL SUBJECT	PROJECT NUMBER	BPA AREA	RPA	TITLE
4.15.1	YAKIMA HATCHERY	90-72	W	F2108	COMPUTER INFORMATION SYSTEM QUALITY CONTROL PROGRAM
4.15.1	YAKIMA HATCHERY	90-72	W	F2108	COMPUTER INFORMATION SYSTEM QUALITY CONTROL PROGRAM
	(Tasks)	90-74	W	F2108	YAKIMA MONITORING AND EVALUATION PROGRAM
	PROGRAM-RELATED, NONMEASURE PROJECTS	90-60	L	F1101	BYPASS EVALUATIONS

TABLE 3. ONGOING, DEFERRED, COMPLETED, AND NEW INTERNAL SUPPORT PROJECTS

PROJECT STATUS DEFINITIONS:

DNGDING = BPA is currently implementing project, i.e., there is a signed agreement, and project is expected to continue into FY 1993.

FY 1992 START = There is no signed agreement yet. but BPA expects to start implementing project in FY 92.

DEFERRED = Project was in FY 1992 AIWP; BPA implementation has been postponed to a future fiscal year beyond FY 1993.

COMPLETED = Project completed in FY 1992. (Projects completed before FY 1992 are not listed in the FY 1993 AIWP.)

FY 1992 COMP = Project is expected to be completed in FY 1992.

NEW = Project is scheduled to start in FY 1993

BPA SERVICE AREA CODES:

L = Lower Columbia Area

T = Puget Sound Area

U = Upper Columbia Area

W = Snake River Area

TABLE 3

FY 1993 AIWP - INTERNAL SUPPORT PROJECTS

ONGOING, DEFERRED. CDHPLETED. NEW PROJECTS

ACTION ITEM	TECHNICAL SUBJECT	PROJECT NUMBER	STATUS	BPA AREA	RPA	TITLE
——	INTERNAL SUPPORT	85-87-I	ONGOING	L	FIIPH	ANADROHOUS FISH PLANNING AND IHPLEHENTATION DECISION SUPPORT SYSTEH
		86-118	ONGOING	W	F11PM	FISH AND WILDLIFE TASK ORDER AGREEHENT - BPNL
		87-413	ONGOING	T	FIIPH	FISH AND WILDLIFE TASK ORDER AGREEMENT - UW
		8947	COMPLETED	T	———	TECHNICAL ASSISTANCE
		89-62	ONGOING	L	FIIPH	IMPLEMENTATION PLANNING PROCESS COORDINATION
		89-72-I	ONGOING	L	FIIPH	SCIENTIFIC REVIEW GROUP SUPPORT
		89-108	ONGOING	T	F1101	COLUMBIA RIVER SALMON PASSAGE MODEL
		91-41	ONGOING	W	F1101	NON-TREATY STORAGE COMPENSATION
		9144	ONGOING	L	FIIPH	SYSTEH OPERATION REVIEW
		91-67	ONGOING	W	F1101	IDAHO WATER RENTAL PILOT PROJECT - FEASIBILITY/COORDINATION STUDY - RESIDENT FISH AND WILDLIFE
		92-20	ONGOING	L	FIIPH	CBFWA FISH AND WILDLIFE PROGRAM PLANNING AND COORDINATION
		92-27	ONGOING	W	———	RETURN OF THE SALMON
		92-31	ONGOING	L	FIIPH	GEOGRAPHICAL INFORMATION SYSTEH
		92-32	ONGOING	W	FIIPH	LIFE CYCLE HODEL DEVELOPMENT/APPLICATION TO SSP IN SNAKE RIVER
		91-69	ONGOING	W	F1109	TECHNICAL ASSISTANCE
		92-XXX	FY 1992 START	L	———	PUBLIC EDUCATION - FISH AND WILDLIFE HABITAT

(VS6-PJSP-1572W)

TABLE 4. ONGOING, DEFERRED, COMPLETED, AND NEW ENDANGERED SPECIES ACT PROJECTS

PROJECT STATUS DEFINITIONS:

ONGOING = BPA is currently implementing project, i.e., there is a signed agreement, and project is expected to continue into FY 1993.

FY 1992 START = There is no signed agreement yet, but BPA expects to start implementing project in FY 1992.

DEFERRED = Project was in FY 1992 AIWP; BPA implementation has been postponed to a future fiscal year beyond FY 1993.

COMPLETED = Project completed in FY 1992. (Projects completed before FY 1992 are not listed in the FY 1993 AIWP.)

FY 1992 COMP = Project is expected to be completed in FY 1992.

NEW = Project is scheduled to start in FY 1993

BPA SERVICE AREA CODES:

L = Lower Columbia Area

T = Puget Sound Area

U = Upper Columbia Area

W = Snake River Area

TABLE 4

FY 1993 AIWP - ENDANGERED SPECIES ACT PROJECTS

ONGOING. DEFERRED. COHPLETED. AND NEW PROJECTS

ACTION ITEM	TECHNICAL SUBJECT	PROJECT NUMBER	STATUS	BPA AREA	RPA	TITLE
----	ENDANGERED SPECIES ACT	8965	ONGOING	L	F1121	CWT EVALUATION OF HISSING HATCHERY GROUPS, OR/WA - USFWS
		89-66	ONGOING	T	F1121	CWT EVALUATION OF HISSING HATCHERY GROUPS, WA-UDF
		89-69	ONGOING	L	F1121	CWT EVALUATION OF HISSING HATCHERY GROUPS, OR-ODFW
		90-61	ONGOING	T	F1121	RESEARCH ON FUNGAL INFECTIONS OF SPRING AND SUMMER CHINOOK
		91-51	ONGOING	T	F1121	ANALYSIS OF RELATIONSHIP OF RIVERFLOW TO THE HIGRATORY TRAVEL TIME AND SURVIVAL OF JUVENILE SALMONIDS
		91-52	FY 1992 COMP	L	F1121	GENETIC CONSULTATION
		91-65	ONGOING	W	F1121	UMATILLA FALL CHINOOK HARKING PROGRAM
		91-66	ONGOING	W	F1121	ICE HARBOR/LOWER GRANITE FISH TRAPPING IMPROVEMENTS
		91-77	COMPLETED	U	F1121	EVALUATION OF LITERATURE AND INFORMATION ON CENETICS OF SNAKE RIVER SPRING, SUMMER, AND FALL CHINOOK SALMON AND COLUWIA RIVER COHO SALMON
		92-22	FY 1992 START	T	F1121	WILD SMOLT BEHAVIOR/PHYSIOLOGY
		92-24	ONGOING	T/L	FII21	INCREASED LEVELS OF FISHERY HARVEST LAW ENFORCEHENT AND PUBLIC AWARENESS FOR ANADROHOUS SALMONIDS IN THE COLUMBIA BASIN
		92-35	ONGOING	T	F1121	GENETIC VARIATION IN DNA OF COHO SALMON FROH THE LOWER COLUHBIA RIVER

(VS6-PJSP-1572W)

TABLE 5. ABBREVIATIONS USED IN THE WORK PLAN

Abbreviation	Complete Title
Act	Pacific Northwest Electric Power Planning and Conservation Act
AHTT	Ad Hoc Technical Team
AIWP	Annual Implementation Work Plan
BIA	Bureau of Indian Affairs
BCWD	Bacterial Cold Water Disease
BKD	Bacterial Kidney Disease
BLM	Bureau of Land Management
BPA	Bonneville Power Administration
BPNL	Battelle Pacific Northwest Laboratory
CBFWA	Columbia Basin Fish and Wildlife Authority
C-E	Cost-effectiveness
CCT	Confederated Colville Tribes
CIS	Coordinated Information System
Council	Northwest Power Planning Council
CRB	Columbia River Basin
CR1TFC	Columbia River Inter-Tribal Fish Conmmission
CRSP	Columbia River Salmon Passage
CSKT	Confederated Salish-Kootenai Tribes
CTUIR	Confederated Tribes of the Umatilla Indian Reservation
CTWSIR	Confederated Tribes of the Warm Springs Indian Reservation
CWU	Central Washington University
CY	Calendar Year
DNA	Deoxyribonucleic Acid
DDE	Department of Energy
EIBS	Erythrocytic Inclusion Body Syndrome
EIP	Early Implementation Package
EIS	Environmental Impact Statement
ELISA	Enzyme-Linked Immunosorbent Assay
EPA	Environmental Protection Agency
EPRI	Electric Power Research Institute
ESA	Endangered Species Act
FCRPS	Federal Columbia River Power System
FDA	Food and Drug Administration
FDTWG	Fish Disease Technical Work Group
FONSI	Finding of No Significant Impact
FY	Fiscal Year
HEP	Habitat Evaluation Procedure
HETWG	Hatchery Effectiveness Technical Work Group
HU	Habitat Unit
ICFWRU	Idaho Cooperative Fish and Wildlife Research Unit
IDFG	Idaho Department of Fish and Game
IFIM	Instream Flow Incremental Methodology
IHN	Infectious Hematopoietic Necrosis
IPN	Infectious Pancreatic Necrosis
IPP	Implementation Planning Process
IRB	Internal Review Budget
ISP	Integrated System Plan

TABLE 5. ABBREVIATIONS USED IN THE WORK PLAN
(Continued)

Abbreviation	Complete Title
IHOT	Integrated Hatchery Oversight Team
KCFS	Thousand cubic feet per second
KIT	Kalispel Indian Tribe
MAF	Million acre-feet
MDFWP	Montana Department of Fish, Wildlife and Parks
MEG	System Monitoring and Evaluation Work Group
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
mtDNA	Mitochondrial DNA
M/WBTWG	Reservoir Mortality and Water Budget Effectiveness Technical Work Group
NED	Northwest Environmental Database
NEPA	National Environmental Policy Act
NF	National Forest
NFH	National Fish Hatchery
NMFS	National Marine Fisheries Service
NPT	Nez Perce Tribe
ODFW	Oregon Department of Fish and Wildlife
ODSP	Oregon Department of State Police
OHSU	Oregon Health Sciences University
osu	Oregon State University
OWRD	Oregon Water Resources Department
PIT	Passive Integrated Transponder
PSMFC	Pacific States Marine Fisheries Commission
PMIS	Program Management Information System
PNUCC	Pacific Northwest Utilities Conference Committee
PNWFHPC	Pacific Northwest Fish Health Protection Conmnittee
PNWRS	Pacific Northwest Research Station
PRG	Policy Review Group
Program	Columbia River Basin Fish and Wildlife Program
PSHFC	Pacific States Marine Fisheries Commission
RFF	Resources for the Future
RM/WBE	Reservoir Mortality/Water Budget Effectiveness
RPA	Request for Project Authorization
scs	Soil Conservation Service
SMEP	System Monitoring and Evaluation Program
SOR	System Operation Review
SPG	System and Subbasin Planning Group
SPM	System Planning Model
SPDC	System Planning Oversight Committee
SPT	Shoshone Paiute Tribe
SRG	Scientific Review Group
STWG	Supplementation Technical Work Group
TBA	To Be Announced
TNC	The Nature Conservancy
TO	Task Order
TWG	Technical Work Group
UCUT	Upper Columbia United Tribes
UI	University of Idaho
UM	University of Montana

TABLE 5. ABBREVIATIONS USED IN THE WRK PLAN
(Continued)

Abbreviation	Complete Title
URB	Umatilla River Basin
URBFC	Upriver Bright Fall Chinook
USACE	U.S. Army Corps of Engineers
USBR	U.S. Bureau of Reclamation
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
uw	University of Washington
WDF	Washington Department of Fisheries
WDW	Washington Department of Wildlife
WEID	West Extension Irrigation District
Work Plan	Annual Implementation Work Plan
WSU	Washington State University
YIN	Yakima Indian Nation

II. FY 1993 BPA BUDGET ALLOCATION

The FY 1993 AIWP reflects a high level of Regional coordination and prioritization through the Implementation Planning Process (IPP). Anadromous fish, will continue to be the area of emphasis of the AIWP highlighted by the following "expense" activities; prioritized projects will be included for the Early Implementation Plan projects; Hydro Operations/Downstream Migration allocation will continue to include the Non-Treaty Storage Agreement (water "rental" in Idaho); research projects in the fish health/artificial propagation and supplementation areas will continue at reduced levels. BPA has increased funding and staffing levels in support of ESA concerns.

Anadromous capital program expenditures include construction activities for the Yakima/Klickitat production facilities, Yakima Phase II Screens, outplanting facilities for the Northeast Oregon Hatchery facilities, the Stanfield Water Diversion in the Umatilla Basin, and initial funding for the Bonneville Fish Sampling Facility, Dryden Dam Fish Screens, and the Springfield Production Facility.

Resident fish activities continue at a reduced level with the completion of the white sturgeon studies and most Council Program measures. The Program includes a "placeholder" for new measures associated with mitigation for Libby and Hungry Horse reservoirs. Initial capital funding for the Hungry Horse Resident Fish Hatcheries is also included.

The wildlife program project activities are scheduled at an increased funding level commensurate with the FY 1990 Wildlife amendment to the Council Program, and the Trust payment to Montana for mitigation activities is scheduled to continue. Note that BPA will continue negotiations for statewide agreements with Idaho, Washington, and Oregon.

Operation and maintenance activities will continue to increase with new facilities becoming operational.

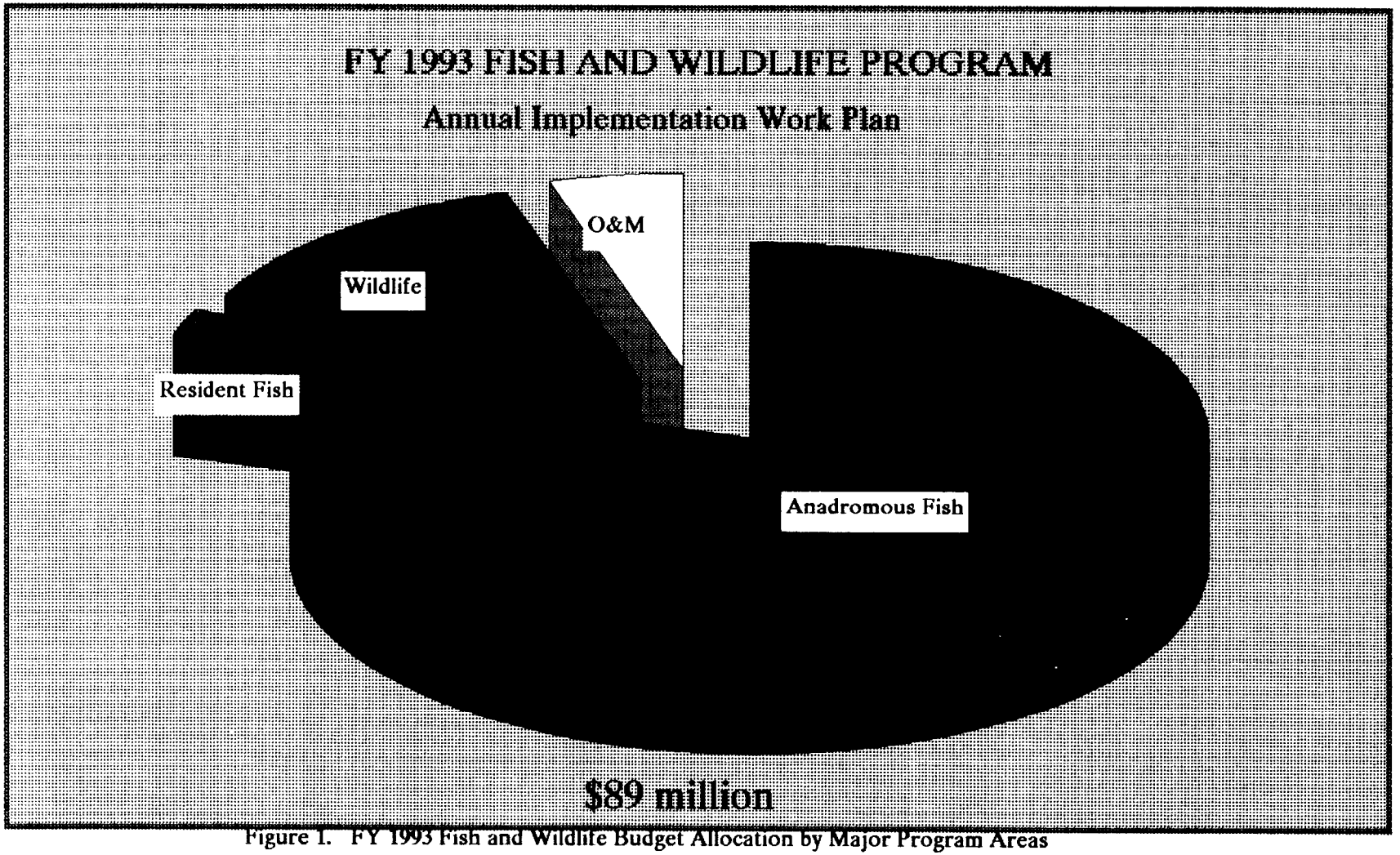

Figure 1. FY 1993 Fish and Wildlife Budget Allocation by Major Program Areas

III. IMPLEMENTATION PLANNING PROCESS

Background: On October 19, 1988, Bonneville Power Administration (BPA) and the Columbia Basin Fish and Wildlife Authority (CBFWA) signed a letter endorsing the Implementation Planning Process"(IPP). The-IPP is an annual, sequential nine-step process by which BPA, in collaboration with the CBFWA, plans its implementation of the Columbia River Basin Fish and Wildlife Program (Program). The nine steps of the IPP are:

Step 1. Program Policy Review

Step 2. Project Scoping

Step 3. Draft AIWP Development

Step 4. Public Review and Comment on Draft AIWP

Step 5. Publication of AIWP

Step 6. Project Specifications

Step 7. Project Selection and Negotiation

Step 8. Contract Awards

Step 9. Evaluation of Implementation Progress

The IPP relies on three types of working groups to accomplish the nine steps: 1) the Policy Review Group (PRG>; 2) the Scientific Review Group (SRG); and 3) Scoping Groups (SGs>, formerly called Technical Working Groups.

Responsibilitiies: The primary role of the PRG is to provide BPA with the best possible guidance and recommendations, from a policy perspective, on the direction, emphasis, and funding of Program implementation. Most of the PRG's activities occur during Step 1 of the IPP, Program Policy Review. The PRG is comprised of senior-level representatives from the CBFWA, BPA, Northwest Power Planning Council, utilities, U.S. Forest Service, environmental groups, and other interested parties.

The SRG provides the PRG and BPA with objective scientific/technical advice and recommendations related to implementation of the Program. The SRG also prepares an annual evaluation report on implementation progress in Step 9 of the IPP. The SRG is comprised of senior-level scientists from the Northwest and other regions of the country.

The SGs assist BPA with scoping of projects (Step 2): responding to public comments (Step 4>, and development of project specifications (Step 6). Currently, there are six IPP SGs: Wildlife, Resident Fish, Columbia and Snake River Flow and Passage, Artificial Propagation, Habitat, and Supplementation and Genetics. These SGs are comprised of the region's technical experts in specific areas of expertise. The IPP provides a process to create additional SGs if they are needed.

BPA is responsible for developing the AIWP (Step 3), implementing the public

review process (Step 4), publishing the AIWP (Step 5), initiating procurement activities (Step 6), selecting contractors (Step 7), and awarding contracts (Step 8). BPA representatives also participate with the SGs in IPP Steps 2, 4, and 6.

Progress: In FY 1992, the PRG continued to meet as needed to accomplish IPP tasks. The PRG provided BPA with funding-level recommendations on BPA's FY 1994-1995 Fish and Wildlife Program Internal Review Budget (IRB). The PRG also developed the Outline of the Draft FY 1993 AIWP (see Section IV. of the AIWP). The Draft FY 1993 AIWP is based on this Outline, which represents the PRG's recommendations to BPA regarding FY 1993 Program implementation. The SGs contributed to the development of the Draft FY 1993 AIWP. The SRG continued to provide BPA and the PRG with objective advice on the scientific aspects of Program implementation. Because the IPP is a unique and relatively new program, BPA has conducted, and continues to conduct, educational efforts to familiarize IPP participants with their roles and responsibilities.

Plans: In FY 1993, the IPP will continue to provide an opportunity for the fish and wildlife agencies, Tribes, and other interested parties to participate with BPA in planning its implementation of the Program. Step 1 of the fifth annual IPP cycle, during which FY 1994 implementation will be planned, is expected to begin in August 1992. The SRG will develop its third annual evaluation report on Program implementation in July 1992; this report is expected to provide valuable technical recommendations for use in planning FY 1994 Program implementation. The SRG and SGs will continue to meet as needed throughout FY 1993.

Copies of the complete IPP document and the Terms of Reference for the PRG, SRG, and SGs are available from:

Publications Clerk
Bonneville Power Administration
Division of Fish and Wildlife - PJ
P.O. Box 3621
Portland, OR 97208

IV. POLICY REVIEW GROUP'S OUTLINE OF THE DRAFT AIWP

The Policy Review Group (PRG) provides critical guidance at the beginning of the annual Implementation Planning Process (IPP) cycle. That guidance must recognize and seek to balance the technical/scientific requirements of Program measures and the political, legal, and institutional realities existing in the Basin.

In Step 1 of the annual IPP cycle, the PRG considers knowledge gained through previous Program implementation, ongoing research, and other related planning activities in order to provide clear and concise recommendations on:

- policy matters as related to Program implementation;
- Program components to be emphasized;
- prioritizing technical subjects; and
- funding levels required for support.

These recommendations are made to BPA and serve as foundations for the technical planners in the Scoping Groups.

To guide development of the Draft FY 1993 AIWP, the PRG developed the General Criteria below. In several of these criteia, reference is made to decisions, objectives, or other standards and criteria found in the Northwest Power Planning Council's (Council> Columbia River Basin Fish and Wildlife Program (Program>. Currently, the Program is being amended. Careful attention will be paid to the amendment process in order to include all relevant instructions resulting from the amendment process in the FY 1993 AIWP and BPA's implementation activities. The Draft AIWP should not forego BPA's mitigation responsibilities as described under the Pacific Northwest Electric Power Planning and Conservation Act to support their Federal responsibilities under the Endangered Species Act.

General Criteria for Draft FY 1993 AIWP

Anadromous Fish:

1. Anadromous Program implementation should focus on petitioned and other weak stocks consistent with decisions occurring in Council forums.
2. Projects should maintain or enhance productivity while ensuring genetic integrity of the Basin's resources.
3. Emphasis should be on fish production using adaptive management and evaluation consistent with Council's program for monitoring and evaluation.
4. Projects must be consistent with biological objectives established under the Council's Program to contribute to the rebuilding of petitioned and other weak stocks.

5. Projects must meet Program criteria for habitat enhancement projects. Project proposers must be able to manage habitat enhancement investments to insure project effectiveness.

6. Focus should be given to improving understanding of supplementation.

7. Priority is placed on collection of better scientific data on the relationship of mainstem flow and passage to fish survival.

8. Program implementation should focus on achieving the Council's doubling goal.

Wildlife:

9. Selection and implementation of wildlife projects must be consistent with the standards and priorities set forth by the Council. Projects should be developed to minimize expenditures on planning. For similar projects directed at the same biological objective, strong consideration will be given to the most cost effective projects.

Resident Fish:

10. Resolution of funding sources for resident fish substitution measures above Hells Canyon Dam should be pursued as a high priority.

General:

11. Increased emphasis should be placed on cost effective programs.

12. Competitive procurement, partnerships, and other cost-sharing arrangements to increase the benefits of ratepayer-funded activities should be promoted.

V. SYSTEM PLANNING ACTIVITIES

BPA actively participates in two Council-managed system planning programs, System and Subbasin Planning and System Monitoring and Evaluation. These two programs will strongly influence future Program direction and will ultimately affect BPA's implementation of the Program, its evaluation and monitoring efforts, and its future Fish and Wildlife Program budget levels. The current status and plans of these two programs are presented below.

System and Subbasin Planning

Responsibilities: The Council funded the activities of the fish and wildlife agencies and tribes to develop an Integrated System Plan (ISP), utilizing 31 separate Subbasin Plans. The fish and wildlife agencies and tribes organized committees at the system and subbasin levels for completing this task. The subbasin level committees were responsible for collecting information and developing drafts of specific Subbasin Plans. The system level committee, the System Planning Group (SPG), was responsible for developing the format for the plans, guiding the subbasin planners, and reviewing draft plans. The SPG then combined the subbasin plans and developed the ISP. The Council organized another committee at the system level, the System Planning Oversight Committee (SPOC), that has identified and is addressing major issues that have been and will be part of the system planning process.

Progress: The Council's contract with the fish and wildlife agencies and tribes through the Pacific States Marine Fisheries Commission called for nine products over the life of the planning process. Planning began in September 1987, and all products have been completed. These products include the preliminary information reports that contain information needed to evaluate the production potential of the subbasins and thereby identify realistic objectives for production, draft Subbasin Plans above Bonneville Dam that include proposed objectives for production, the preliminary system analysis report above Bonneville Dam that analyzes the proposed objectives for consistency, and final Subbasin Plans above Bonneville Dam that include recommended and alternative strategies for meeting the proposed objectives. The same products have been completed for subbasins below Bonneville Dam. The draft ISP was issued for public review, and a final ISP was issued in June, 1991. BPA has initiated a process with its contractor, Resources For The Future (RFF), to develop a cost-effectiveness (C-E) analysis process, which will become one of the criteria for selecting and implementing proposed actions from the ISP which are adopted into the Council's Program amendment. C-E analysis programs and processes were developed and tested on upper Columbia Basin subbasins. The C-E analysis will be applied to all subbasin plans above Bonneville Dam and combined with an analysis of alternative system actions such as flows and transportation.

Plans: The ISP recommends objectives and strategies for salmon and steelhead production in the 31 subbasins of the Columbia River Basin. This plan, will be utilized as part of the Phase III Program amendment process that will extend into the spring of 1992. The results of the amendment process will provide guidance for funding activities in BPA's implementation of the Fish and Wildlife Program in the 1990s. Phase I, Early Implementation Package, i.e., a list of priority projects from the ISP and other sources, and Phase II projects will be implemented to protect or rebuild marginal anadromous fish runs in the Columbia Basin. BPA is participating in the system planning

process to assist in the definition of strategies for meeting salmon and steelhead production objectives and to help make the link between the planning process and implementation scheduling in fiscal years 1993 and beyond. BPA participation in the Program amendment process and the SPOC will continue on a regular basis through the end of the planning process.

System Monitoring and Evaluation

Responsibilities: The Council's Ad Hoc Technical Team (AHTT) formed in the Phase II Program amendment process, will subsume the Monitoring and Evaluation Group (MEG). The AHTT will advise on Program development, monitor progress toward rebuilding schedules, and report on achievement of biological objectives and performance standards. In the interim, MEG should complete its recommendations on genetic monitoring procedures, and a format for system wide evaluation of the Program (SMEP report), plus develop recommendations for coordination of monitoring and research proposals. Coordinated Information System (CIS) development and review, and evaluating and disseminating research results will also continue.

Progress: MEG subcomittees on genetics guidelines and SMEP development are nearing completion of final reports. Specific CIS products have been reviewed, and several M&E programs in the Region have been reviewed. Several regional modeling efforts have also been reviewed and coordinated.

Plans: The Council will prepare a work plan as the basis for direct BPA funding. MEG will develop genetic guidelines, a draft SMEP report, and research and monitoring coordination guidelines. MEG will be subsumed by the AHTT which will continue to develop and monitor Program implementation, Funding for AHTT will be evaluated as needed when a foundation for the group has been established..

Long-Term Role: MEG functions will be subsumed by the AHTT which will continue measuring systemwide progress, monitoring compliance with Program policies, integrating system plans maintaining the System Planning Model (SPM), coordinating regional modeling efforts, guiding development and maintenance of the CIS, and evaluating research results for application to Program actions.

VI. FISH AND WILDLIFE DIVISION ORGANIZATION AND STAFF

The Division of Fish and Wildlife develops, coordinates, and manages BPA's Fish and Wildlife Program pursuant to the requirements of the Pacific Northwest Power Planning and Conservation Act (Act).Table 6 contains a current staffing list for the Division. Branch and section titles and functions are as follows:

Fisheries Integration Branch

This Branch reviews and analyzes proposed BPA policies, programs, and plans for their consistency with BPA's fish and wildlife obligations under the Act and recommends standards, criteria, policy, or procedures necessary to ensure equitable treatment of fish and wildlife in BPA's decision making process; evaluates hydroelectric operations for fish and wildlife impacts and needs and recommends balanced operations; reviews and analyzes policies, programs, plans, and legislation of external entities to determine their impact on BPA's Fish and Wildlife Program; represents and integrates the biological and Fish and Wildlife Program requirements into the development of agency policy, programs, and plans; and develops and administers research and monitoring contracts directed at resolving fish passage problems at hydroelectric facilities. The Branch provides the Chair of the Columbia and Snake River Flow and Passage Scoping Group and manages BPA's implementation of major sections of the Program.

Biological Planning Branch

This Branch provides biological/technical expertise to the Division for planning for and implementing the Program. It develops and maintains the Division's Program Management Information System (PMIS); develops annual implementation work plans; provides cost-effectiveness analysis and determination for funding actions; develops and maintains the fish and wildlife mitigation accounting records; represents BPA on several Scoping Groups; and manages BPA's implementation of major sections of the Program.

Program Planning Section

The Program Planning Section provides the Chair of the Wildlife and Supplementation/Genetics Scoping Groups, and represents BPA on the System and Subbasin Planning and System Monitoring and Evaluation groups. It oversees and coordinates the Implementation Planning Process and develops the Annual Implementation Work Plan. It oversees implementation of areas of the Program dealing with natural production of salmon and steelhead. It develops methods for and oversees the application of cost-effectiveness criteria in the selection of activities to be implemented by BPA and develops and maintains BPA's fish and wildlife mitigation accounting records.

Biological Research Section

This Section provides biological technical expertise necessary to assist the Division's development of the Program Annual Implementation Work Plan and annual budget planning documents and to assist in the implementation of complex major projects; provides the Chair of the Resident Fish,

Artificial Propagation, and Habitat Scoping Groups; develops scopes of work and oversees the procurement of projects identified in the annual Work Plan; and provides COTRs for subsequent contracts. It oversees areas of the Program addressing artificial production (including fish health) of salmon and steelhead, resident fish, and wildlife.

Project Management Branch

The Project Management Branch manages the implementation of fish and wildlife development projects of the Program; provides comprehensive oversight and management of such projects appropriate to their cost, policy precedents, political sensitivity, biological complexity, and associated controversy; formulates and directs the coordination efforts both within BPA and externally with Federal and State agencies, Tribes, utility groups, and the public to define, develop, and implement proposals; manages the development of the comprehensive long-term operations and maintenance agreements attendant on such projects; and manages and directs the allocation of financial and personnel resources necessary to implement, operate, and maintain capital and expense projects.

This AIWP refers to four different personnel titles. It is helpful for the reader to understand the responsibilities and authorities of these positions, should questions or comments arise about BPA procurement, projects, or implementation. The positions are:

PROJECT MANAGER

Individual assigned working responsibility for the coordinated and timely implementation of one or more 'major" projects within the Program. All Project Managers are assigned to the Project Management Branch.

PROJECT BIOLOGIST

Biologist who serves as the lead for all biological activities related to a major project. During project implementation, the Project Biologist oversees all biological aspects of the project and provides biological information to the Project Manager.

PROJECT OFFICER

Individual responsible for the management of "non-major" projects; often serves as the COTR for any contracts associated with the project.

CONTRACTING OFFICER'S TECHNICAL REPRESENTATIVE (COTR)

Individual responsible to BPA's Contracting Officer for the development, negotiation, and management of contracts for specific goods and services associated with fulfillment of Program measures.

TABLE 6. STAFFING LIST
DIVISION OF FISH AND WILDLIFE
9/9/92

OFFICE OF THE DIRECTOR - PJ

James **Luce - Division Director**
Jillice West - Division Secretary
Gerald Bouck - Senior Fisheries Scientist
Stephen Smith - Assistant to Director
Keith Hartner - Deputy Director
Lynn Mantanona - Secretary
Barbara Ballew - Program Analyst
Craig Hovey - Administrative Technician
John Norlin - Fish and Wildlife Contract Coordinator
Donna Pyne - Procurement Assistant
Charles Roller - Fish and Wildlife Resource Management Advisor
(vacant) - Public Affairs Specialist

FISHERIES INTEGRATION BRANCH - PJI

Ronald Starkey - Branch Chief
Luellen Montesdeoca - Branch Secretary
Peggy Olds - Policy Development Analyst

FISH PASSAGE PLANNING SECTION - PJIA

Sharron Monohon - Section Chief
David Askren - Environmental Engineer
Daniel Daley - Fishery Biologist (Management>
Timothy Fisher - Fishery Biologist (Management)
Jim Geiselman - Environmental Engineer
Laura Hamilton - Fishery Biologist (Management>
William Hewitt - Computer Systems Analyst
Robyn MacKay - Hydraulic Engineer
Roger Rice - Computer Specialist
(vice-Fisher> - Fishery Biologist (Management)
(vice-Osborn) - Fishery Biologist (Management)

RESEARCH AND POLICY SECTION - PJIB

Alan Ruger - Section Chief
Gary Johnson - Fishery Biologist (Management)
Cindy Loehr - ADP Coordinator
William Maslen - Fishery Biologist (Management)
Patrick Poe - Fishery Biologist (Management)
Christine Stoffels - Computer Specialist
Steven Vigg - Fishery Biologist (Management)
Debbie Watkins - Fishery Biologist (Management>
Carolyn Zarnekee - Fishery Biologist (Management>
(vice-Watkins> - Fishery Biologist (Management)

TABLE 6. STAFFING LIST
DIVISION OF FISH AND WILDLIFE
9/9/92
(Continued>

BIOLOGICAL PLANNING BRANCH - PJS
Robert Beraud - Branch Chief
Nicoli Howland - Branch Secretary

PROGRAM PLANNING SECTION - PJSP
Mark Schneider - Section Chief
Katherine Beale - Industry Economist
Joe DeHerrera - Wildlife Biologist
Robert Frain - Policy Development Analyst
Martin Larsen - Computer Specialist
Mark Shaw - Fishery Biologist (Management>
Thomas Vogel - Fishery Biologist (Management>
Robert Walker - Wildlife Biologist
(vacant-new> - Fish and Wildlife Biologist

BIOLOGICAL RESEARCH-SECTION - PJSR
Ronald Morinaka - Section Chief
Robert Austin - Fishery Biologist (Research>
Jerry Bauer - Fishery Biologist (Research)
Scott Bettin - Fish and Wildlife Biologist
Jeffrey Gislason - Fish and Wildlife Biologist
Frederick Holm - Fishery Biologist (Research>
Rick Westerhof - Fishery Biologist (Research)
(vacant-Ruger) - Fishery Biologist (Management)
(vacant-Westerhof) - Fishery Biologist (Research>

FISH & WILDLIFE PROJECT MANAGEMENT BRANCH - PJW
Thomas Clune – Chief
Marcella Bateson - Project Manager
David Byrnes - Policy Development Analyst
Kimball Erdman - Public Utility Specialist
Steven Levy - Project Manager
Jay **Marcotte - Project Manager**
Deborah New - Project Manager
Rick Stoots - Project Manager
(vacant) - Fish and Wildlife Biologist

Yakima Project Office- PJW-5
Marvin Nelson - Project Manager
Sharon Rice - Secretary
Lonna Stroklund - Fishery Biologist (Management)

VII. PROGRAM PLANS BY ACTION ITEMS

ANADROMOUS FISH ACTION ITEMS AND TECHNICAL SUBJECTS

2.1 WATER BUDGET MEASURES

303(a) **[Abstract] The Federal project operators and regulators shall provide the fish and wildlife agencies and Tribes with a total Water Budget of 78 kcfs-months (4.64 Maf). It is to be divided into 58 kcfs-months (3.45 Maf) at Priest Rapids Dam and 20 kcfs-months (1.19 Maf) at Lower Granite Dam, and used during April 15 through June 15.**

303(b) **[Abstract] BPA shall fund the establishment and operation of a Fish Passage Center, including funds for two Fish Passage Manager positions and for technical and clerical support. This support will assist the Fish Passage Managers in: 1) planning and implementing the annual smolt monitoring program called for in Section 304(d)(2); 2) developing and implementing flow and spill requests; and 3) monitoring and analyzing research results to assist in implementing the Water Budget and spill planning. The Fish Passage Center will function as the primary program center for housing data and information regarding juvenile fish passage.**

303(c) **[Abstract] The Federal project operators, Fish Passage Managers, fish passage advisor, and power system operators will coordinate system operations for the current year and develop, experimental use and accounting procedures for both the mid-Columbia and Snake River Water Budgets. Experimental Water Budget procedures shall be implemented for at least water years 1987 and 1988. This committee also shall evaluate alternative Water Budget implementation procedures and report to the Council.**

ACTION **ITEM ACTIVITY SUMMARY:**

Objectives:

To provide adequate flows for fish migrations, and to insure clear and timely integration of fish requirements and hydrosystem operational decisions.

Background and Proaress to Date:

The Council recognized that the agencies and Tribes lacked the expertise to work with the owners and operators of the hydrosystem. The agencies and Tribes needed such expertise to assure that the Water Budget would be considered in all phases of hydrosystem planning and operation. The Council, therefore, specified that BPA fund two Fish Passage Managers, one for the Tribes and one for the agencies. BPA has funded the operation of the Fish Passage Center and the Fish Passage Data Information System since 1983.

Plans:

BPA plans to continue to fund the operation of the Fish Passage Center, the Fish Passage Managers and support staff, and the Fish Passage Data Information System to benefit the integration of fish and hydrosystem operational requirements, and to provide increased adult returns by using supplemental flows in a timely fashion.

I. COMPLETED PROJECTS

None.

II. FY 1992 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
87-127	Smolt Monitoring and Water Budget Programs - PSMFC and CRITFC Proiect Officer: R. Starkey Obiectives: Fund the operation of the Fish Passage Center and provide Water Budget flows for shaping between April 15 and June 15 to reduce hydrosystem impacts on juvenile outmigrations. (See also Action Item 2.1)	Date initiated: February 1987 Results/Conclusions: BPA funded the operation of the Fish Passage Center and the Fish Passage Data Information System in FY 1991.	1. Continuing: BPA will continue to fund the operation of the Fish Passage Center and the Fish Passage Data Information System and to provide Water Budget flows for shaping annually. 2. Continuing: Contractors will guide the smolt monitoring program; they will provide an annual report by November 1 of each year and a smolt monitoring program by December 1 of each year.

Smolt monitoring, as provided under the Fish Spill MOA, is also conducted under Project 87-127:

Smolt Monitoring/Spill Proiect Officer.. W. Maslen Obiectives: Provide monitoring of juvenile salmonid out-migrations at Lower Monumental and Ice Harbor Dams, as provided in the Fish Spill Memorandum of Agreement (MOA), to determine smolt numbers, migration timing, and species composition. This information will be used by the fishery agencies and Tribes to manage spill for fish passage under the terms of the MOA.	Date Initiated: 1989 Results/Conclusions: Under the terms of the fish spill MOA, monitoring at Lower Monumental was discontinued with installation of bypass. By mutual agreement of the parties, monitoring was not conducted at Ice Harbor Dam in 1992.	FY 1993: By mutual agreement of the parties, monitoring is not planned for Ice Harbor.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
83-6	Operation and Maintenance of BPA Fish Marking Trailer - USFWS Project Officer: W. Maslen Objectives: Using mobile fish marking trailers, conduct marking (coded-wire tags, freeze brand, and PIT tags) of juvenile salmonids throughout the region for BPA-funded projects, including the Columbia River Basin Smolt Monitoring Program and Yakima Basin Monitoring and Evaluation.	Date initiated: 1983 Results/Conclusions: A total of approximately 2.2 million fish were marked in 1992.	Continuing: BPA will continue to fund marking of various fish groups for BPA-funded projects.

III. NEW PROJECTS

None.

2.2 SMOLT MONITORING PROGRAM

303(d) **[Abstract] BPA shall fund an annual smolt monitoring program to be conducted by the agencies and Tribes. The monitoring program will provide information on the migrating characteristics of the various salmon and steelhead stocks and will include:**

1. **Field monitoring of smolt movement to determine the best timing of storage releases;**
2. **Coordination of runoff forecasts with water budget usage and shaping;**
3. **Continuous monitoring of runoff conditions and fish movement at Lower Granite and Priest Rapids dams to provide information to allow changes in water budget usage if actual runoff conditions are inconsistent with runoff forecasts: and**
4. **Coordination of hatchery releases with water budget usage.**

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To determine where all major groups of migrating, juvenile hatchery and wild fish are in the hydrosystem. This information is used to implement the Water Budget and communicate spill requests.

Backaround and Progress to Date:

Starting in the 1970s, spring flows in the Columbia River changed dramatically with the completion of major headwater storage projects. This change helped flood control and power generation, but slowed the travel time of the outmigration. This resulted in increased exposure to predation and increased mortality of the juvenile salmon and steelhead. The Council sought to reduce the mortality associated with the downstream migrations by increasing the spring flows. A Water Budget volume was derived from agencies' and Tribes' recommendations and was specified for the mid-Columbia and lower Snake rivers. To be able to implement the Water Budget effectively, the smolt monitoring program has evolved to sample the downstream juvenile migrations at numerous key locations throughout the hydrosystem.

Plans:

BPA plans to continue funding the smolt monitoring program to improve the timely integration of the juvenile salmon and steelhead outmigration with the operation of the hydrosystem.

I. COMPLETED PROJECTS

None.

II. FY 1992 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
84-14	Monitoring of Downstream Salmon and Steelhead at Federal Hydroelectric Facilities – NMFS Project Officer: P. Poe Objectives: To monitor the seaward migration of juvenile salmon and steelhead at John Day, and Bonneville Dams as part of the Columbia River Smolt Monitoring Program; to provide daily fish capture and condition data, as well as dam operations and river flow data, to the Fish Passage Center to assist in Water Budget management.	Date initiated: March 1984 Results/Conclusions: Project provided information that has been used by the Fish Passage Center as a basis for Water Budget requests and for Water Budget management directed toward improving the survival of juvenile salmon and steelhead migrants. Project has provided information on the migrating characteristics of the various stocks of salmon and steelhead produced in the Columbia River system. Project continues to provide information for investigating relationships among flows, spill, travel time, smolt condition, and adult production. The 1984-1990 Annual Reports are available; 1991 Annual Report will be available May 1992.	1. FY 1992: 1991 Annual Report available May 1992. 2. Continuing: Project will continue to be funded as part of the Smolt Monitoring Program. Contractor will provide annual operational reports and recommend changes as needed to the smolt monitoring schedule and facilities.

Smolt monitoring, as provided under the Fish Spill MOA, is also conducted under Project 84-14:

Smolt Monitoring/Spill – NMFS Project Officer: W. Maslen Objectives: Provide monitoring of juvenile salmonid out-migrations at John Day and The Dalles Dams, as provided in the Fish Spill Memorandum of Agreement (MOA),	Date Initiated: 1989 Results/Conclusions: By mutual agreement of the parties, monitoring was not conducted at the Dalles Dam in 1992.	Continuing: Continue gatewell sampling program for the purpose of spill management, as agreed by the parties under the terms of the MOA, pending installation of bypass.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
84-14 cont.	to determine smolt numbers, migration timing, and species composition. This information will be used by the fishery agencies and Tribes to manage spill for fish passage under the terms of the MOA.	monitoring at John Day Dam was conducted during the summer outmigration (no additional monitoring over the ongoing Smolt Monitoring Program).	
83-323	Smolt Monitoring at the Head of Lower Granite Reservoir and Lower Granite Dam - IDFG Project Officer: P. Poe Objectives: 1. Operate the Lewiston and Clearwater traps from March 15 to mid-July as part of the Smolt Monitoring Program for Water Budget, fish collection, and transportation management purposes. 2. Monitor arrival time, relative passage index, and condition of juvenile salmon and steelhead into the head of Lower Granite reservoir from Snake River tributaries. 3. Determine travel time for hatchery chinook, hatchery steelhead, and wild steelhead migrants from the head of Lower Granite Reservoir to Lower Granite Dam using PIT-tagged smolts marked at the traps as well as freeze-branded and PIT-tagged smolts passing the traps from upriver sites.	Date initiated: January 1983 Results/Conclusions: The information collected on the migrational timing and condition of juvenile hatchery-produced and wild salmon and steelhead trout Snake River stocks from 1983 through 1991 has been used for in-season operational decisions relative to Water Budget, facility power operations, and fish collection and transportation programs. The collected information is also being used to investigate the relationships among river flows, travel time, smolt survival and condition, and adult production of salmon and steelhead trout stocks produced in the Snake River system. The 1983-1990 Annual Reports are available; 1991 Annual Report will be available May 1992.	1. Fv 1992: BPA will continue to fund Project 83-323 activities as part of the Smolt Monitoring Program. 2. Continuing: Contractor will provide annual reports and recommend changes as needed to the smoit monitoring schedule and facilities.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
87-401	Assessment of Smolt Condition for Travel Time Analysis – USFWS Project Officer: P. Poe Objectives: Collect information on, smoltification, and prevalence of disease for marked groups of juvenile salmon and steelhead used by the Fish Passage Center in their travel time studies as part of the Smolt Monitoring Program. Continue the development of a smolt condition index to monitor fish quality during the seaward migration for use in real-time management and evaluation.	Date initiated: May 1987 Results/Conclusions: Results show that level of stress, smoltification, and fish health can introduce bias/errors into estimates of smolt survival, and travel time. Measurements of parameters used to quantify the extent of smolt development, level of stress, and prevalence of disease are needed to evaluate how these biological factors are influencing experimental design assumptions in Columbia River mainstem passage juvenile fish migration studies. The 1987–1989 Annual Reports are available; 1990 Annual Report will be available September 1991.	FY 1992: BPA will continue to fund Project 87-401 activities as part of the Smolt Monitoring Program. 2. Continui nq: Contractor will provide annual reports and recommend changes based on evaluation of results.
91-28	PIT-Tagging of Wild Spring Chinook in Idaho and Oregon Project Officer: P. Poe Objectives: Assess the migrational characteristics of wild/natural parr in selected streams above Lower Granite Dam in Idaho and Oregon during the summer/fall (marking phase). During the recovery phase the following spring, actual characteristics will be established at PIT-tag recovery sites.	Date Initiated: May 1991 Results/Conclusions: Information from wild spring/summer chinook salmon parr PIT-tagged during summer/fall 1991 will be available spring/summer 1992.	1. FY 1992: BPA will continue to fund Project 91-28 activities as part of the Smolt Monitoring Program. 2. Continuing: Contractor will provide annual reports and recommend changes as needed.

III. NEW PROJECTS

None.

3.1 ALTERNATIVE CONDUIT SYSTEM FOR JUVENILE FISH

(Test and Evaluate: November 15, 1987; Report January 1988)

403(d)(2) **Test and evaluate an alternative conduit system for efficiently conveying juvenile fish from hydroelectric powerhouse intakes to the tailwater. This study shall test a design with potential for broad application at dams where turbine intake deflectors are in use or under consideration.**

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To test and evaluate alternative conduit systems for bypassing juvenile salmon and steelhead around dams.

Background and **Progress to** Date:

As juvenile salmon and steelhead migrate downstream past dams, they may be injured by pressurized conduit bypass systems used at most dams. A past study performed by the U.S. Army Corps of Engineers (USACE) **and Idaho Cooperative Fish and Wildlife Research Unit** (ICFWRU) **demonstrated that an open flume has potential for minimizing injury to fish. BPA contracted with these two agencies to design and test different types of flumes to help pass fish safely around dams. The project was completed in March 1988. Results were used in the design of the new smolt bypass system at Little Goose Dam.**

Plans:

Action Item 3.1 has been completed.

Projects:

None.

4.1 **EELENSBURG TOWN DIVERSION DAM FISHWAY AND BYPASS**
(Design: October 1987)
(Construction Completed: October 1989)

803(b)(6) **Bonneville shall fund the design and construction of a low flow vertical slot fishway and replacement of obsolete, inefficient juvenile fish screening/bypass facilities at the Ellensburg Town Diversion Dam.**

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To fund construction of the Ellensburg Town Diversion Dam fish screens.

Background and Progress to Date:

BPA funded the construction of the Ellensburg Town fish screens to improve the outmigration of juvenile salmon and steelhead from the Yakima River system. BPA did not fund the proposed fishway because no fishway presently exists, and the Ellensburg Water Company had a pre-Northwest Power Act obligation to fund fishway construction. Construction of the fish screens was completed in October 1989.

Plans:

Action Item has been completed.

4.2 HABITAT AND PASSAGE-IMPROVEMENT PROJECTS (Completion extended through FY 1992)

703(c)(1) [Abstract] BPA shall fund habitat and tributary passage projects as provided in Action Item 4.2. Upon Council approval of system plans provided for in Section 205, System Planning, BPA shall fund habitat and passage restoration or improvement measures in those plans, including those measures identified in the plans that are listed in Appendix A Table: Planning Inventory of Enhancement Projects. The Phase Two amendments extended the date for completion of Action Item 4.2 through FY 1992.

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To fund habitat and tributary passage projects as provided in Action Item 4.2.

Background and Progress to Date:

A total of 30 habitat and tributary passage improvement projects are listed in the AIWP, including 27 ongoing projects and three projects expected to be completed in FY 1992. Due to the large number of projects involved in the implementation of Program Measure 703(c)(1), the diversity of activities included, and BPA's continuous implementation support of habitat and passage projects, a table format was developed and used to review BPA implementation in the FY 1987 Work Plan. The same table format (Table 7) has been used in the current AIWP, but only for projects that started before FY 1991. Projects that started in FY 1991 or 1992 have been described using the same format as is used in the rest of the AIWP, with completed, ongoing, deferred, and new projects described in separate tables.

Table 7 covers research projects, evaluation projects, and habitat and passage enhancement projects. The last group is listed by subbasin, beginning with the Willamette/Clackamas River subbasin and proceeding upriver to the Salmon River subbasin. Information presented in the Table includes: the project description, current project status, and contract-effective period.

Plans:

BPA will continue to fund construction/implementation activities (in addition to O&M> for specific Action Item 4.2 habitat projects in FY 1992, as indicated in Appendix C of the FY 1992 AIWP. BPA will continue to fund O&M activities for these and other projects in FY 1992 and beyond.

Habitat project selection criteria will be developed under Phase Two of the Council's Program amendment process by March 16, 1992. Fish

managers and BPA (through the IPP) will develop a list of habitat projects from those proposed in the ISP, the model watershed planning efforts in Washington, Oregon, and Idaho, and other sources. Projects will be selected through use of the criteria described above. The proposed list of selected habitat projects will be presented to the Council for their review by May 15, 1992. The Council is expected to approve the final list of habitat projects for BPA funding in 1993.

BPA plans to include monitoring and evaluating of habitat projects beginning in FY 1993, based on the results of a project contracted with BPNL (Project 91-15) and technical input from the IPP's anadromous fish habitat Scoping Group. The BPNL project will recommend the use of a comprehensive project or implementation plan for all future BPA-funded habitat projects, including elements such as pre-project information requirements and monitoring and evaluation guidelines specifically based on the habitat project's objectives. Expected fishery and riparian benefits will be tracked over time and project success as measured by achievement of objectives will be assessed. BPA will seek cost sharing, where appropriate, for funding project-level monitoring and evaluation activities.

I. COMPLETED PROJECTS

See Table 7.

II. FY 1992 ONGOING PROJECTS

See below and Table 7.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
91-15	Development of Stream Habitat Improvement Standards - BPNL Project Officer: R. Austin Objectives: Project will develop standards and guidelines for the selection of new habitat enhancement projects for BPA implementation beginning in FY 1993. Methods for determining limiting factors to fish production and for monitoring and evaluating fish and wildlife benefits resulting from stream habitat enhancement or protection projects will also be developed. Other major objectives include: 1. Define baseline fish population and riparian habitat data necessary to allow for determination of changes in these parameters over time as a result of enhancement work on habitat protection measures.	Date Initiated: October 1991 Results/Conclusions: Not available at this time.	FY 1992: BPA has contracted with BPNL to develop objective and technically sound habitat enhancement project selection standards. Guidelines for Monitoring and Evaluation of projects will also be developed. February 14, 1992: Draft list of criteria developed; BPNL will meet with technical experts to review criteria. Draft will be sent to BPA and Council. March 5 - 6, 1992: BPNL will meet with BPA's IPP Scoping Group to review and revise criteria. Revised draft sent to BPA. May 16, 1992: Final report to BPA. June - July 1992: Scope and prioritize critical research needed to improve/evaluate future habitat measures basinwide. Finalize design of basinwide monitoring and evaluation plan. October 1992: Implement pilot monitoring and evaluation plan in a high priority basin.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
91-15 cont.	2. Determine current "state-of-the-art" in habitat protection and enhancement strategies, with a focus on alternatives that are designed to address the problem(s) contributing to habitat degradation. 3. Report critical research needed to improve/evaluate future habitat measures. 4. Determine relative cost-effectiveness of stream protection versus restoration/ enhancement measures.		
86-79-1	Fifteenmile Creek - Phase IV-V - ODFW Project Officer: R. Stoots Objectives: Overall objective is to increase the production of wild winter steelhead within the basin: 1. Reduce lethal summer water temperatures.	Date Initiated: November 1, 1990 Results/Conclusions: None at this time.	FY 1991: Begin implementation FY 1992: Implement new habitat restoration measures along with maintaining previous projects completed under Contract No. 86-79. FY 1993: Continued implementation of habitat restoration measures along with maintaining previous projects completed under Contract #86-79.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
86-79-1 cont.	2. Increase summer water flow. 3. Restore fish habitat diversity within the stream. 4. Improve stream channel stability. 5. Reduce sediment loading through restored riparian vegetation.		

III. NEW PROJECTS

None.

Table 7: Habitat Improvement and Passage Enhancement
Measure 703(c)(1)
Status Report

PROJECT NUMBER	1/ 2/ PO - PM	TITLE/OBJECTIVE	PROJECT STATUS	CONTRACT START DATE	TERM RENEWAL DATE
I. RESEARCH PROJECTS					
		None.			
II. EVALUATION AND MONITORING PROJECTS					
91-73	RJA	Monitoring and Evaluation of Idaho Habitat Improvement Projects - IDFG Objective: Evaluate the juvenile chinook and steelhead production benefits of habitat and passage improvement projects in the Clearwater and Salmon River basins in order to produce the offsite mitigation record for Idaho.	Detailed project accomplishments are described in the 1990 annual report. Project benefits to date are modest; barrier removals, followed by in-stream structures, have had the largest effect on increasing anadromous fish production. More intensive evaluations by this project have detected some significant density increases due to structures, but the majority of differences were not significant. Benefits of habitat improvement projects in terms of adult returns and resulting seeding levels will depend on improved flows and passage conditions. The depressed nature of upriver anadromous stocks has precluded attainment of full benefit of any habitat project in Idaho.	8/15/83	7/1/91

1/PO = Project Officer: RJA/R. Austin, JAB/J. Bauer
2/PM = Project Manager: SML/S. Levy, JGM/J. Marcotte, RDS/R. Stoots

PROJECT NUMBER	PO 1/ - PM 2/	TITLE/OBJECTIVE	PROJECT STATUS	CONTRACT START DATE	TERM RENEWAL DATE
83-7 cont.			Monitoring of control and treatment streams within the Clearwater and Salmon River drainages will continue in FY 1992. Project was reviewed in FY 1992 to continue monitoring of habitat projects and status of Idaho salmon stocks.		
84-11	RDS	Clackamas/Hood River Habitat Enhancement Program - USFS/Mt. Hood NF Fish Creek Evaluation Subproject Objective: To evaluate and quantify drainage-wide changes in habitat and smolt production as a result of habitat improvement.	Monitoring and Evaluation is ongoing in FY 93.	4/1/84	4/1/93

1/PO = Project Officer: RJA/R. Austin, JAB/J. Bauer
2/PM = Project Manager: SML/S. Levy, JGM/J. Marcotte, RDS/R. Stoots

PROJECT NUMBER	1/ 2/ PO - PM	TITLE/OBJECTIVE	PROJECT STATUS	CONTRACT START DATE	TERM RENEWAL DATE
III. PASSAGE AND HABITAT IMPROVEMENT					
Willamette River/Clackamas River Subbasin					
84-11	RDS	Clackamas/Hood River Habitat Enhancement - Mt. Hood NF		4/1/84	4/1/93
		Collawash River Falls Passage Subproject Objective: Construct a fishway to correct Collawash Falls passage problems. The falls prevent access to potential spawning and rearing habitat. Imorovement: Structure and passage Habitat: 10 miles Species: Spring chinook, winter and summer steelhead, and coho Benefit: Increase of 55,532 smolts and 2,957 adults.	O&M in FY 93.		
		Collawash River Drainage Habitat Improvement; Hot Springs Fork Subdrainages Subproject Objective: Install instream structures to improve spawning habitat and effective cover. Improvement: Instream structure Habitat: 10.6 miles Species: Winter and summer steelhead, spring chinook and coho salmon Benefit: 7,249 coho smolts; 2,616 chinook smolts; and 4,229 steelhead smolts.	O&M in FY 93. Will negotiate potential implementation projects in FY 93 through the Habitat Scoping Group.		

1/PO = Project Officer: RJA/R. Austin, JAB/J. Bauer
2/PM = Project Manager: SML/S. Levy, JGM/J. Marcotte, RDS/R. Stoots

PROJECT NUMBER	1/ 2/ PO - PM	TITLE/OBJECTIVE	PROJECT STATUS	CONTRACT START DATE	TERM RENEWAL DATE
84-11 cont.		**Lake Branch/West Fork Hood River Improvement Subproject** Objective: Improve adult/juvenile fish passage and the quality of spawning and low-flow rearing habitat. Improvement: Instream structure and passage Habitat: 10.0 miles Species: Summer and winter steelhead, chinook Benefit: 1,309 chinook smolts; 1,748 steelhead smolts.	FY 93 activities include O&M of previous projects. Will negotiate potential implementation projects in FY 93 through the Habitat Scoping Group.		
		Fish/Wash Creek Habitat Improvement Subproject Objective: Improve spawning and rearing habitat for salmon and steelhead through habitat improvement measures. Improvement: Instream structure Habitat: 4 miles Species: Spring chinook, coho, winter and summer steelhead. Benefit: 1,857 steelhead smolts; 1,317 coho smolts.	FY 93 activities include O&M of past projects. Will negotiate potential implemenation projects in FY 93 through the Habitat Scoping Group.		
		Lower Oak Grove Fork Habitat Improvement Subproject Objective: Improve fish rearing and spawning habitat in the lower 3.8 miles of stream. Improvement: Instream structure Habitat: 3.8 miles Species: Winter and summer steelhead, chinook and coho salmon Benefit: 680 steelhead smolts; 2,536 coho smolts.	FY 93 activities include O&M of past projects. Will negotiate potential implementation projects in FY 93 through the Habitat Scoping Group.		

1/PO - Project Officer: RJA/R. Austin, JAB/J. Bauer
2/PM - Project Manager: SML/S. Levy, JGM/J. Marcotte, RDS/R. Stoots

PROJECT NUMBER	1/ PO - 2/ PM	TITLE/OBJECTIVE	PROJECT STATUS	CONTRACT START DATE	TERM RENEWAL DATE
84-11 cont.		**Fifteenmile Creek Basin Habitat Improvement Subproject** Objective: Improve adult and juvenile fish passage, spawning and rearing habitat, and water quality conditions. Improvement: Passage and instream structure Habitat: 120 miles (30 mi USFS lands) Species: Wild winter steelhead	FY 93 activities include O&M of past projects. Will negotiate potential implementation projects in FY 93 through the Habitat Scoping Group.		
86-124	RDS	**Little Fall Creek Fish Passage - Facilities Maintenance** Objective: Provide 0 & M funding for Fish Passage facilities. Imorovement: Structure and passage Habitat: 14 miles Species: Salmon and steelhead Benefit: Potential of adults: Steelhead adults: 543 Spring chinook adults: 256	A multi-year O&M agreement has been negotiated through 9/15/92, with FY 89 funding. FY 93 continues O&M.	7/22/86	9/16/92
Fifteenmile Creek Subbasin					
86-79	RDS	**Fifteenmile Creek Habitat Improvement - ODFW** Objective: Increase wild winter steelhead production to levels which approximate historic maximum run sizes. Imorovement: Passage and instream structure Habitat: 120 miles Species: Wild winter steelhead Benefit: 11,715 smolts/year	Project completed. O&M is to be continued under Project No. 86-79-01	9/87	---

1/PO = Project Officer: RJA/R. Austin, JAB/J. Bauer
2/PM = Project Manager: SML/S. Levy, JGM/J. Marcotte, RDS/R. Stoots

PROJECT NUMBER	1/ 2/ PO - PM	TITLE/OBJECTIVE	PROJECT STATUS	CONTRACT START DATE	TERM RENEWAL DATE
Oeschutes River Subbasin					
81-108	RDS	Habitat Quality and Anadromous Fish Production Potential on the Warm Springs Indian Reservation - CTWSIR Objective: The project consists of three phases: I. Survey existing and potential fishery resources on the Reservation; II. Identify factors limiting anadromous fish production and design appropriate instream or riparian enhancement measures to correct limiting factors; and III. Implement measures and evaluate effectiveness. Species: Summer steelhead and spring chinook.	Phase I: completed in FY 82. Phase II: completed in FY 87. Phase III: Implementation of habitat enhancement measures was completed in FY 89. Monitoring of project effectiveness will be completed in FY 90 with the final evaluation report completed in FY 91. O&M of past projects in FY 93. Will negotiate potential implementation projects in FY 93 through the Habitat Scoping Group.	9/30/81	5/1/93
		Beaver Creek Habitat Improvement Subproject Objective: Construct instream structures to provide juvenile salmon and steelhead rearing habitat in channelized sections of Beaver Creek. Fence riparian zone and rip-rap banks with juniper. Improvement: Instream and riparian Habitat: 2 miles Species: Wild spring chinook. Benefit: 6,750 spring chinook smolts.	Instream structures completed in FY 86. Fencing and juniper rip-rap completed in FY 89. O&M of past projects in FY 93.		
		Mill Creek Habitat Improvement Subproject Objective: Construct instream structures to provide juvenile salmon and steelhead rearing habitat in the Potter's Pond section of Mill Creek. Fence riparian zone Improvement: Instream and riparian Habitat: 1 mile Species: Wild spring chinook and summer steelhead Benefit: 1,020 spring chinook and 540 summer steelhead smolts.	Instream structures completed in FY 87. Fencing completed in FY 89. O&M of past projects in FY 93.		

1/PO - Project Officer: RJA/R. Austin, JAB/J. Bauer
2/PM - Project Manager: SML/S. Levy, JGM/J. Marcotte, RDS/R. Stoots

PROJECT NUMBER	PO 1/ - PM 2/	TITLE/OBJECTIVE	PROJECT STATUS	CONTRACT START DATE	TERM RENEWAL DATE
81-108 cont.		**Shitike Creek Habitat Improvement Subproject** **Objective: Stabilize stream channel, create a low-flow passage channel, develop pool habitat, and provide shading.** **Improvement:** Instream and riparian. **Habitat:** miles **Species:** Wild spring chinook and summer steelhead. **Benefit:** 3,139 spring chinook smolts and 2,642 summer steelhead smolts.	Instream structures completed in FY 89. O&M of past projects in FY 93.		
84-62	RDS	**Trout Creek Riparian Enhancement - ODFW** **Objective:** Construct instream and riparian structures to provide juvenile salmon and steelhead rearing habitat and adult spawning habitat. **Improvement:** Instream and riparian. **Habitat:** 90 miles **Species:** Steelhead and spring chinook. **Benefit:** 1000 - 1500 adult steelhead.	Construction is ongoing and expected to be completed in FY 92.	9/1/84	--
88-116	RDS	**Trout Creek O&M** **Objective:** To maintain fences and instream structures constructed under Project 84-62.	BPA will continue funding maintenance of Trout Creek habitat improvement structures in FY 93.	9/88	3/93

1/PO = **Project Officer:** RJA/R. Austin, JAB/J. Bauer
2/PM = **Project Manager:** SML/S. Levy, JGM/J. Marcotte, RDS/R. Stoots

PROJECT NUMBER	PO 1/ - PM 2/	TITLE/OBJECTIVE	PROJECT STATUS	CONTRACT START DATE	TERM RENEWAL DATE
John Day River Subbasin					
84-8	RDS	**N. Fork John Day River Habitat Enhancement** – USFS/Umatilla NF		4/1/84	4/1/93
		Desolation Creek Subproject Objective: **Increase the production potential of summer steelhead and spring chinook by improving pool:riffle ratio, constructing adult salmon resting pools, increasing quality and quantity of spawning habitat, and controlling bank erosion.** **Improvement:** Instream **structure** **Habitat: 42 miles** **Species: Spring chinook, summer steelhead** **Benefit: Spring chinook – 4950 smolts** **Summer steelhead – 2475 smolts**	**FY 93 activities include O&M of previous projects. Will negotiate potential implementation projects in FY 93 through the Habitat Scoping Group.**		
		North Fork John Day River Habitat Improvement Subproject **Objective: Increase production of spring chinook through side-channel modification, improve juvenile rearing area, improve bank stabilization, increase adult resting areas, and increase amount of riparian vegetation.** **Improvement:** Instream **structure** **Species: Spring chinook** **Benefit: 5,000** smolts/yr	**FY 93 activities include O&M of previous projects. Will negotiate potential implementation projects in FY 93 through the Habitat Scoping Group.**		

1/PO = **Project Officer: RJA/R. Austin, JAB/J. Bauer**
2/PM = **Project Manager: SML/S. Levy, JGM/J. Marcotte, RDS/R. Stoots**

PROJECT NUMBER	1/ 2/ PO - PM	TITLE/OBJECTIVE	PROJECT STATUS	CONTRACT START DATE	TERM RENEWAL DATE
84-8 (cont.)		**Wall Creek System Subproject** **Objective:** Improve quality and quantity of juvenile salmonid rearing area and adult spawning area; control bank erosion; increase amount of riparian vegetation. Improvement: Instream structures. **Habitat:** 7 miles **Species:** Summer steelhead. **Benefit:** 2,274 summer steelhead smolts.	O&M is included for FY 93. Will negotiate potential implementation projects in FY 93 through the Habitat Scoping Group.		
		Fivemile Creek Subproject **Objective:** Increase production of summer steelhead **Improvement:** Instream structure **Habitat:** **Species:** Summer Steelhead **Benefit:** 375 steelhead smolts	O&M is included for FY 93. Will negotiate potential implementation projects in FY 93 through the Habitat Scoping Group.		
		Camas Creek System Subproject **Objective:** Improve quality of juvenile salmonid rearing area and adult spawining area; control bank erosion; increase amount of riparian vegetation. **Improvement:** Instream structures. **Habitat:** 16.5 miles **Species:** Summer steelhead **Benefit:** 5,362 summer steelhead smolts.	O&M is included for FY 93. Will negotiate potential implementation projects in FY 93 through the Habitat Scoping Group.		

1/PO = Project Officer: RJA/R. Austin, JAB/J. Bauer
2/PM = Project Manager: SML/S. Levy, JGM/J. Marcotte, RDS/R. Stoots

PROJECT NUMBER	1/ 2/ PO - PM	TITLE/OBJECTIVE	PROJECT STATUS	CONTRACT START DATE	TERM RENEWAL DATE
84-8 (cont.)		Clear/Granite Creeks Subproject Objective: Increase the potential of spawning salmon through habitat improvement measures. Improvement: Decrease mine waste water pollution. Habitat: 12 miles Species: Spring chinook	FY 93 activities include O&M of previous projects. Will negotiate potential implementation projects in FY 93 through the Habitat Scoping Group.		
84-21	RDS	Mainstem, Middle and North Fork/John Day River - ODFW		6/30/85	4/1/93
		Mainstem John Day River Subproject Objective: Provide additional rearing habitat for juvenile salmon and steelhead. Improvement: Fencing and instream structure Habitat: 23 miles Species: Spring chinook and Summer steelhead Benefit: Steelhead smolt increase - 344,000; chinook smolt increase - 371,000 to 996,000	O&M is included for FY 93. Will negotiate potential implementation projects in FY 93 through the Habitat Scoping Group.		
		Middle Fork John Day River Subproject Objective: Provide additional holding areas for adult chinook and steelhead; improve rearing area for juveniles of both species. Improvement: Fencing and instream structure Habitat: 30 miles Species: Spring chinook, summer steelhead Benefit. Included in benefits for the Mainstem John Day River.	O&M is included for FY 93. Will negotiate potential implementation projects in FY 93 through the Habitat Scoping Group.		

1/PO = Project Officer: RJA/R. Austin, JAB/J. Bauer
2/PM = Project Manager: SML/S. Levy, JGM/J. Marcotte, RDS/R. Stoots

PROJECT NUMBER	1/ 2/ PO – PM	TITLE/OBJECTIVE	PROJECT STATUS	CONTRACT START DATE	TERM RENEWAL DATE
84-21 (cont.)		**North Fork John Day River Subproject, including Fox Creek** **Objective: Fox Creek – improve steelhead spawning and rearing conditions through increasing riparian vegetation, reducing erosion and sedimentation, and increasing pool areas.** **Improvement: Fencing and instream structure** **Habitat: 42 miles** **Species: Spring chinook and steelhead** **Benefit: Included in benefits for the Mainstem John Day River.**	**FY 93 activities include O&M of previous projects. Will negotiate potential implementation projects in FY 93 through the Habitat Scoping Group.**		
		North Fork John Day River Subproject, including Camas Creek **Objectives: Provide additional rearing habitat for juvenile steelhead.** **Improvement: Fencing and instream strucure** **Habitat: 1 1 e s** **Species: Summer steelhead** **Benefit: Included in benefits for the Mainstem John Day River.**	**Will negotiate potential implementation projects in FY 93 through the Habitat Scoping Group.**		
84-22	RDS	**Middle Fork and Tributaries, John Day River–USFS/Malheur NF** **Objective: Increase the quantity, quality, and diversity of pool habitat for juvenile steelhead and chinook salmon.** **Improvement: Instream structure** **Species: Chinook and Steelhead** **Habitat: 6 miles**	**FY 93 activities include O&M of previous projects. Will negotiate potential implementation projects in FY 93 through the Habitat Scoping Group.**	12/1/91	12/1/92

1/PO = **Project Officer: RJA/R. Austin, JAB/J. Bauer**
2/PM = **Project Manager: SML/S. Levy, JGM/J. Marcotte, RDS/R. Stoots**

PROJECT NUMBER	PO 1/ - PM 2/	TITLE/OBJECTIVE	PROJECT STATUS	CONTRACT START DATE	TERM RENEWAL DATE
85-71	RDS	**South Fork John Day River Habitat Enhancement/Izee Falls Fish Passage - BLM**		9/1/85	3131/96
		Izee Falls Subproject **Objective: Provide fish access to 81 miles of spawning and rearing habitat by providing passage over 56-foot falls.** **Improvement: Passage** **Species: Wild Summer Steelhead** **Benefit: Benefit:Cost ratio is 5.4:1** **Habitat: 81 miles**	**O&M and monitoring and evaluation of past habitat enhancement projects continue in FY 93.**		
Umatilla River Subbasin					
83-436	JGM	**Three Mile Dam Passage Improvements - USBR** **Objective: Design and construct facilities, including ladders and canal screens, to enhance fish passage at Three Mile Dam and WEID canal screens. Design and build trapping and counting facilities.** **Improvement: Passage** **Species: Summer steelhead, spring and fall chinook**	**Construction of right bank ladder and trap completed winter-fail 1988. Operational shake-out period continues. Construction of left bank facilities completed July 1988. Operational shake-out period for left bank continues. Project-specific monitoring and evaluations began FY 1990. A building to cover the RB trap area is being planned for the future, and will be tied into the design of the adult holding facilities.**	5/1/84	**O&M is ongoing**

1/PO = **Project Officer:** RJA/R. **Austin, JAB/J. Bauer**
2/PM = **Project Manager:** **SML/S. Levy, JGM/J. Marcotte, RDS/R. Stoots**

PROJECT NUMBER	1/ 2/ PO - PM	TITLE/OBJECTIVE	PROJECT STATUS	CONTRACT START DATE	TERM RENEWAL DATE
87-104 & 87-104-1	JGM	Westland (87-104) and Stanfield (87-104-1) Diversion Improvements - ODFW Objective: Improve passage up and downstream at Westland and Stanfield irrigation diversion dams by ladder and screen improvements. Improvement: Passage Species: Summer steelhead, spring and fall chinook	Predesign completed. Westland hydraulic review completed. Final Design completed for Westland. Construction, ladder, screen/trap - completed in December 1990. BR began O&M of facility. Plans for FY 93 include designing and building protection against downstream bank erosion and infill of bypass outfall. Schedule: Stanfield: Final design started March 1989, complete Oct. 1992. Start construction: ladder - June 1992, screens - Oct. 1992. All construction complete, Stanfield - Fall 1992.	1/87	--
87-100	JAB	Umatilla River Basin Fish Habitat Enhancement - USFS/Umatilla NF Objective: Instream and riparian habitat improvement for portions of the Umatilla River and tributaries on the Umatilla National Forest. Improvement: Instream structures Habitat: 18 miles Species: Summer steelhead and spring chinook. Benefit: (Entire basin) 21,700 summer steelhead and 21,100 spring chinook smolts.	FY 1993: Finish construction in Pearson Creek and Meacham Creek. Most of activity is now shifting to O&M of structures already built.	4/87	3/92

1/PO = Project Officer: RJA/R. Austin, JAB/J. Bauer
2/PM = Project Manager: SML/S. Levy, JGM/J. Marcotte, RDS/R. Stoots

PROJECT NUMBER	1/ 2/ PO - PM	TITLE/OBJECTIVE	PROJECT STATUS	CONTRACT START DATE	TERM RENEWAL DATE
87-100-1	JAB	Umatilla River Basin Fish Habitat Enhancement - CTUIR Objective: Instream and riparian habitat improvement for portions of the Umatilla River and tributaries on the Umatilla Reservation. Improvement: Fencing, riparian revegation, instream structures Habitat: 18 miles Species: Summer steelhead and spring chinook. Benefit: See Project 87-100.	FY 1991: Begin construction at Squaw Creek, continue on Meacham Creek and Umatilla River. FY 1992: Complete construction at Squaw Creek, and Meacham Creek. FY 1993: Begin biological evaluation of Squaw and Meacham Creek and maintenance of existing structures.	7/87	4/92
87-100-z	JAB	Umatilla River Basin Fish Habitat Enhancement - ODFW Objectives: Instream and riparian habitat improvement for portions of the Umatilla River and tributaries on privately-owned land. Improvement: Fencing, riparian revegation, instream structures Habitat: 18 miles Species: Summer steelhead. Benefit: See Project 87-100	FY 1991: Complete work at East Birch Creek, continue at Meacham Creek, and begin work at West Birch Creek. FY 1992: Complete work at Meacham Creek, continue at West Birch Creek, and start at North Fork Meacham Creek. FY 1993: Begin work in East Birch Creek. Move to maintenance of structures.	7/87	3/92
88-22	JGM	Umatilla River Basin Trap and Haul - ODFW Objective: To provide for passage of adults and smolts under low-flow river conditions Imorovement: Passage Species: Summer steelhead, spring and fall chinook	Design and acquisition of equipment (trucks, trailers, etc.) completed February 1989. Some equipment modifications made FY 91. Trap at Three Mile Dam right bank ladder operational - Nov. 1987. Westland smolt trap operational - June 1990. Trap and haul program operational - May 1989. Continue to conduct program, conduct shake-out at facilities and refine operational criteria. ODFW and CTUIR are funded	10/87	9/92

1/PO = Project Officer: RJA/R. Austin, JAB/J. Bauer
2/PM = Project Manager: SML/S. Levy, JGM/J. Marcotte, RDS/R. Stoots

PROJECT NUMBER	1/ 2/ PO - PM	TITLE/OBJECTIVE	PROJECT STATUS	CONTRACT START DATE	TERM RENEWAL DATE
88-22 (cont.)			by BPA to operate trap and haul program. Also, finalize criteria for a mechanism to move fish from trap to trailer at Westland.		
89-2.4-1	JAB	Passage Facility Evaluation and URB Adult Fish Monitoring Objectives: Evaluate loss of juvenile fish due to passage through or over WEID Canal screens. Monitor passage of adult salmon and steelhead at Three Mile Dam. Species: Summer steelhead, spring and fall chinook	FY 1991: Evaluate WEID Canal screen and adult passage at Three Mile Dam FY 1992: Complete Three-Mile evaluation. FY 1993: Monitor Three-Mile facilities and begin Maxwell evaluation.	9/89	9/91
87-416 & 87-416-1	JGM	Cold Springs (87-416-1) and Maxwell (87-416) Diversion Improvement - USBR Objectives: Improve passage up and downstream at Cold Springs and Maxwell diversions. Improvements include fishways and canal screens. Improvement: Passage Species: Summer steelhead, spring and fall chinook.	All construction complete. USBR turned projects over from construction to O&M in April 1990. BPA is funding O&M under an O&M contract with USBR. The contract term is indefinite.	7/87	O&M is ongoing
87-104-z	JGM	Westland Non-Fish Improvements Objectives: To install improvements on Westland irrigation system that will allow fish passage facilities to operate as intended. Improvement: Passage Species: Steelhead and chinook.	Contract in place with Westland Irrigation District. Predesign completed June 1990. Final design completed in September 1990. Construction substantially completed by December 1991.	3/90	O&M is ongoing

1/PO - Project Officer: RJA/R. Austin, JAB/J. Bauer
2/PM - Project Manager: SML/S. Levy, JGM/J. Marcotte, RDS/R. Stoots

PROJECT NUMBER	1/ 2/ PO - PM	TITLE/OBJECTIVE	PROJECT STATUS	CONTRACT START DATE	TERM RENEWAL DATE
Grande Ronde River Subbasin					
84-9	RDS	**Grande Ronde Habitat Improvement Project - USFS/Wallowa-Whitman NF**		7/1/84	4/1/93
		Upper Grande Ronde Basin Subproject **Objective:** Improve spawning and rearing habitat in the Upper Grande Ronde River. **Improvement:** Instream structures **Habitat:** 53 miles	**FY 93 activities include O&M of previous projects. Will negotiate potential implementation projects for FY 93 through the Habitat Scoping Group.**		
		Upper North Fork John Day Basin Subproject **Objective:** Improve spawning and rearing habitat in the North Fork John Day River **Habitat:** 49 miles **Species:** Wild spring chinook and steelhead	**FY 93 activities include O&M of previous projects. Will negotiate potential implementation projects for FY 93 through the Habitat Scoping Group.**		
		Lower Grande Ronde Basin Subproject **Objective:** Improve spawning and rearing habitat in the Lower Grande Ronde River. **Habitat:** 30 miles **Species:** Spring chinook and summer steelhead	**FY 93 activities include O&M of previous projects. Will negotiate potential implementation projects for FY 93 through the Habitat Scoping Group.**		

1/PO = **Project Officer:** RJA/R. Austin, JAB/J. Bauer
2/PM = **Project Manager:** SML/S. Levy, JGM/J. Marcotte, RDS/R. Stoots

PROJECT NUMBER	1/ 2/ PO - PM	TITLE/OBJECTIVE	PROJECT STATUS	CONTRACT START DATE	TERM RENEWAL DATE
84-25	RDS	**Grande Ronde Habitat Improvement Project - ODFW**		7/1/84	4/1/93
		Upper Grande Ronde Subbasin **Subproject** Objective: **Improve the quality and quantity of spawning and rearing habitat for salmon and steelhead through habitat improvement activities.**	**FY 93 activities include** O&M **of previous projects. Will negotiate potential implementation projects for FY 93 through the Habitat Scoping Group.**		
		Joseph Creek Subbasin **Subproject** Objective: **Improve the quality and quantity of spawning and rearing habitat for steelhead through habitat improvement activities.**	**FY 93 activities include** O&M **of previous projects. Will negotiate potential implementation projects for FY 93 through the Habitat Scoping Group.**		
Yakima River Subbasin					
86-75	SML	**Little** Naches **River Passage -** USFS/Wenatchee **NF** Objective: **Construct fish passage facility to correct passage problems resulting from Salmon Falls. Rehabilitate flood-damaged reach below falls to provide an adequate passage corridor to the fish passage facility.** Improvement: **Passage:** instream **channel modification, and riparian revegetation** Habitat: **18 to 24 miles, depending on species** Species: **Spring chinook,** coho, **and steelhead** Benefit: Species / # Smolts **Spring chinook 30,300** **Coho 39,600** **Steelhead 6,500**	**Construction of** fishway **and channel rehabilitation completed fall 1987.** BPA will **continue to fund operation and maintenance activities.**	10/30/85	**Late Spring** 1991

1/PO = **Project Officer:** RJA/R. **Austin,** JAB/J. **Bauer**
2/PM = **Project Manager:** SML/S. **Levy,** JGM/J. **Marcotte,** RDS/R. **Stoots**

PROJECT NUMBER	1/ PO	2/ PM	TITLE/OBJECTIVE	PROJECT STATUS	CONTRACT TERM START DATE	RENEWAL DATE
Clearwater River Subbasin						
84-5		SML	**South Fork Clearwater River - USFS**		1/1/84	1991
			Red River Subproject **Objective: Increase the quantity and improve the quality of spawning and rearing habitat for anadromous fish.** **Improvement: Instream structure** **Habitat: Approximately 20 miles** **Species: Spring chinook** **Benefit: Benefit:Cost ratio is 15:1**	**Completion scheduled for 1992. O&M agreement will be required beyond 1991 to protect investments. USFS has requested additional funding to add new projects. Final report will summarize project completion.**		
			Crooked River Subproject **Objective: To increase natural smolt production potential of salmon and steelhead.** **Improvement: Structures** **Habitat. 17 miles** **Species: Chinook and steelhead** **Benefit: Benefit:Cost ratio is 6.22:1**	**Completion scheduled for 1992. Project has been funded to completion with FY 1987 funds. Evaluation and O&M scheduled for 1988-1991.**		

1/PO = **Project Officer: RJA/R. Austin, JAB/J. Bauer**
2/PM = **Project Manager: SML/S. Levy, JGM/J. Marcotte, RDS/R. Stoots**

PROJECT NUMBER	1/ 2/ PO - PM	TITLE/OBJECTIVE	PROJECT STATUS	CONTRACT START DATE	TERM RENEWAL DATE
Salmon River Subbasin					
84-23	SML	Camas Creek, Idaho - USFS/Salmon NF Objective: Improve riparian conditions to increase salmon and steelhead spawning and rearing potential. Improvement: Fencing and riparian revegetation Habitat: miles Species: Spring chinook and steelhead Benefit: Smolt / Adults Steelhead 4,586 / 76 Chinook 24,570 / 128	Monitoring and maintenance will continue in FY 1993 and beyond.	6/29/84	9/01/92
83-359	SML	Salmon River Habitat Enhancement - Shoshone/Bannock Tribe		10/1/83	1/90
		Bear Valley Creek Habitat Improvement Subproject Objective: Enhance habitat degraded by historic mining and dredging operations. Improvement: Instream structure and riparian enhancement Species: Wild chinook salmon and summer steelhead	Project construction was completed in FY 1988. O&M and monitoring will continue in FY 1991 and beyond. East Fork construction began in FY 91 and will be completed in FY 92. NEPA compliance is complete. Monitoring O&M will continue in FY 93 and beyond.		
		Yankee Fork/East Fork Salmon River Subproject Objective: Enhance habitat degraded by historic mining and dredging operations. Improvement: Instream structure Habitat: 152 miles Species: Salmon and steelhead	Construction began in 1987 and was completed for Yankee Fork in FY 1988. O&M and monitoring will continue in 1991 and beyond.		

1/PO = Project Officer: RJA/R. Austin, JAB/J. Bauer
2/PM = Project Manager: SML/S. Levy, JGM/J. Marcotte, RDS/R. Stoots

PROJECT NUMBER	1/ 2/ PO - PM	TITLE/OBJECTIVE	PROJECT STATUS	CONTRACT START DATE	TERM RENEWAL DATE
83-415	SML	**Alturus Lake Creek and Upper Salmon River Flow Augmentation – USFS/Sawtooth NF** **Objective: Enhance natural production of chinook salmon and reestablish sockeye salmon production through increased streamflow.** **Improvement:** Instream structure **Species: Chinook and sockeye** **Benefit: Flow augmentation alternative = benefit:cost ratio of 15.5:1 to 23.4:1; Water right acquisition alternative = 18.5:1.**	**Water rights will be acquired with full flow available for fish passage in Alturas Lake Creek during Spring 1992. Increased flows will open up not only passage to Alturas Lake, but spawning gravels as well. Project will be completed in FY 1992.**	9/30/89	
84-24	SML	**Marsh/Elk/Valley/Upper Salmon River, Idaho –** USFS/Region **4** **Objective: Identify and implement measures to improve habitat for salmon and steelhead.** **Improvement:** Instream structure **Habitat: 150 miles** **Species: Steelhead, spring and summer chinook**	**Construction completed on Lower Bear Valley Creek, Elk Creek and Upper Salmon River projects.** **Monitoring and O&M will continue in FY 93 and beyond.**	6/29/84	4/30/92

1/PO = **Project Officer: RJA/R. Austin, JAB/J. Bauer**
2/PM = **Project Manager: SML/S. Levy, JGM/J. Marcotte, RDS/R. Stoots**

4.3 ROZA DAM FISH PASSAGE FACILITIES

(Juvenile Facilities Completion: March 1, 1987)
(Adult Facilities Completion: March 1, 1988)

803(b)(2) **[Abstract] BPA shall fund the U.S. Bureau of Reclamation (USBR) to renovate and repair adult and juvenile fish passage facilities at Roza Dam.**

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To fund the USBR to renovate and repair adult and juvenile fish passage facilities at Roza Dam.

Background and Progress to Date:

The USBR owns Roza Dam; fish passage facilities have been constructed through Congressional appropriations. The project is one of 20 such passage improvement projects in the Yakima River Basin. Fish screen and ladder improvements were required to protect juvenile fish from being lost in irrigation canals and to enable adult salmon and steelhead to migrate upstream to spawn. The project now provides adequate upstream and downstream fish passage, including adequate passage during periods of reservoir drawdown.

USBR began screen construction in December 1985; facilities and ladder modification construction bids were opened in August 1986. Construction of the facilities was completed in FY 1989.

Plans:

Action Item has been completed.

Projects:

No BPA-funded projects.

4.4 PROSSER DAM FISH PASSAGE FACILITIES

(Juvenile Facilities Completion: March 1, 1987)
(Adult Facilities Completion: December 1, 1987)

803(b)(3) **[Abstract] BPA shall provide funds to the USBR for construction of improve- ments and additions to Prosser Dam necessary to provide safe, efficient, and timely passage of adult and juvenile fish.**

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

Provide funds to the USBR for construction of Prosser Dam improvements and additions necessary to provide safe, efficient, and timely passage of adult and juvenile fish.

Background and Progress to Date:

The USBR owns Prosser Dam; fish passage facilities have been constructed through Congressional appropriations. The project is one of 20 such passage improvement projects in the Yakima River Basin. Fish screen and ladder improvements were required to protect juvenile fish adequately from being lost in irrigation canals and to enable adult fish to migrate upstream to spawn.

USBR began screen construction in May 1986. Right bank ladder was completed in May 1986. Left and center ladders were completed in September 1989.

Plans:

Action Item has been completed.

Projects:

No BPA-funded projects.

4.5 YAKIMA RIVER FISH PASSAGE IMPROVEMENTS

(Completion of Elements in Table 3 of 803(b)(5): December 1, 1988)
(Post-Construction Evaluations)

803(b)(5) **Upon approval by the Council, BPA shall fund the design and construction of the improvements listed in Table 2. All fish screening facilities shall meet current screening design standards.**

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To construct Yakima River fish passage improvements.

Background and Progress to Date:

A network of irrigation canals diverts water from the Yakima and Naches rivers for use by various agricultural interests in the Yakima River Basin of Central Washington. Juvenile salmon and steelhead often stray into these canals during their outmigration to the sea. The BPA, USBR, Bureau of Indian Affairs (BIA), and Washington State are constructing fish screens to direct the young salmon and steelhead back to the Yakima and Naches rivers.

The Yakima Project entities will fund the construction of fish ladders at various projects to facilitate the normal upstream migration of adult salmon and steelhead.

Plans:

BPA plans to fund construction through to completion and to evaluate projects as they are completed.

See project summaries on following table.

I. COMPLETED PROJECTS

None.

II. FY 1992 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
85-62	Passage Improvement Evaluations – BPNL Project Manaaer: T. Clune Obiectives: Evaluate effectiveness of passage improvement projects.	Date initiated: March 1985 Results/Conclusions: Evaluation is ongoing; results published in BPA annual reports.	Continuing: Evaluation will continue as projects are completed and go on line.
89-90	Phase 2 Screen Design and Construction – USBR Project Manager: T. Clune Obiectives: Predesign/NEPA of 63 fish screen facilities throughout the Yakima Basin. Project 88-111, Stevens/Naches/ Selah Screens, and Project 86-65, Snipes/Allen Screens, have been combined with Project 89-90.	Date Initiated: July 1989 Results/Conclusions: Preliminary design of Group 1 complete. Construction initiated on the first of the group 1 sites.	FY 1992: Construct group 1 sites and complete design of group 2 projects.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
91-57	Yakima Phase 2 Screen Fabrication - WDF Proiect Manager: T. Clune Objectives: Fabrication of Phase 2 screen drum assemblies and associated mechanical components.	Date Initiated: May 1991 Results/Conclusions: Fabrication of group 1 assemblies ongoing.	FY 1992: Continue fabrication for groups 2 through 5 projects. FY 1993: Continue fabrication of groups 2 through 5 screen assemblies.
92-15	Dryden Screens Design and Construction - Chelan P.U.D. Proiect Managers: T. Clune Objectives: Conduct environmental analysis, design, and construct fish screening facilities at the Dryden Canal. These facilities will protect juvenile spring and summer chinook from being trapped in the Dryden Canal.	Date Initiated: October 1991 Results/Conclusions: Contract executed, pre-design initiated.	FY 1992: Initiate and complete NEPA compliance and facility design. FY 1993: Construct facility.

III. NEW PROJECTS

None.

4.6 WATER EXCHANGE FOR UMATILLA RIVER
(Support Beginning Spring 1987)
(Report Evaluations: Annually)

703(a)(17) **[Abstract] BPA shall provide power or reimbursement for power costs to USBR pumping plants designed to exchange Columbia River water for Umatilla River water. The USBR must obtain consent from all affected water users and regulators and provide assurance to the Council that water exchanged to augment streamflows will be used to meet annual flow objectives established by the ODFW and the CTUIR. The Oregon Water Resources Department (OWRD) will certify annually to the Council that the exchanged water will improve instream flows and will benefit fish. The USBR shall fund state and tribal fish and wildlife agency monitoring and evaluation studies to determine the biological effectiveness of this measure.**

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To support instream flow enhancement efforts, which will increase Umatilla anadromous fish production by improving passage and rearing conditions.

Background **and Progress to Date:**

Federal authorizing legislation prepared by project sponsors was approved in fall 1988. The Council amended the Program to provide for BPA funding of power costs associated with interim pumping. USBR will handle operation and maintenance, capital and evaluation activities.

Because the original Program language did not include interim pumping and because USBR pumping plants are still in the planning/design stage, no water exchanges under this Action Item took place until Spring 1989. Through passage-assistance projects (Projects 87-409 and 88-50) under Action Item 4.2, BPA had provided for pumping power to operate existing West Extension Irrigation District (WEID) pumps to increase flows below Three Mile Dam during spring and fall 1987 and during spring and fall 1988. Under Project 89-27, BPA has reimbursed USBR for power costs for interim pumping conducted each spring and fall, and will continue to do so until Phase I of the USBR's Umatilla Basin Project is in place.

In June 1989, the USBR, with assistance from BPA, OWRD, ODFW, Tribes, and the Basin Steering Committee, finalized a basin work plan that included the schedule for interim pumping and project completion and defined the scope of monitoring and evaluation activities. BPA and USBR entered into an Interim Pumping Agreement in 1990 to provide for the transfer of funds for power costs associated with interim pumping. The first interim pumping under this Program measure took place in spring 1989. In spring 1990, USBR and BPA began planning for power needs for the USBR's Umatilla Basin Project.

I. COMPLETED PROJECTS

None.

II. FY 1992 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
89-27	Provide Power for USBR Columbia River Pumps (also Interim Flow Enhancement) Project Officer: J. Marcotte Objectives: Enhance instream flows in the Umatilla River by exchanging Columbia River water for Umatilla River water.	Date Initiated: FY 1989 Results/Conclusions: Private irrigation system facilities have been used to provide up to 50 cfs additional water below Three Mile Dam during spring and fall periods. No analysis of biological benefits has been undertaken.	1. FY 1992: Provide power to Phase I - WEID pumps. 2. FY 1994 or 1995: Provide power to completed Columbia River pumps. (Phase 2).
89-27-i	Stanfield Water Release - Stanfield Irrigation District Project Officer: J. Marcotte Objectives: Purchase rights to stored water for use to enhance attraction flows and improve passage flows for returning fall chinook.	Date Initiated: October 19, 1992 Results/Conclusions: About 200 acre-feet of water were released ddily during 10 days in October to increase flows. Fish returns to the Umatilla increased significantly during this period.	No further actions planned.

III. NEW PROJECTS

None.

4.6.1 EVALUATE NON-STRUCTURAL WATER MEASURES IN UMATILLA BASIN
(Develop Workplan, Report to Council in April 1989)

703(a)(17) **[Abstract: BPA, USBR, Council, Oregon Water Resources Department, and other interested parties shall jointly prepare a workplan for an evaluation of non-structural alternatives that may benefit fish and hydropower generation, and whether the combined benefits of such measures can be quantified.**

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

Identify and evaluate alternative means of providing enhanced plans, other than pumping/exchange projects.

Background and Progress to Date:

This action item has been subsumed by the USBR "Section 213" study, mandated by Public Law 100-557. Section 213 instructs USBR to review Umatilla Project Operations to identify ways to further mitigate fishery losses. This study encompasses so-called "non-structural" measures in the Program, such as contracts, conservation, reservoir storage allocation, water deliveries, water rights, and water lease and purchase. USBR completed review of the report, finalized it and submitted it to Congress in late 1989.

Plans:

USBR to be prepared to follow up on any recommendations Congress may direct. Nothing new for FY 93.

Projects

None.

4.14.1 TEMPORARY JOHN DAY ACCLIMATION FACILITY (Upon Council Approval, Complete Construction)

703(f)(2)(B) Upon the Council's approval of the plan, Bonneville shall fund design, construction, and evaluation of the temporary facilities.

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To build and test the effectiveness of acclimation ponds for upriver bright fall chinook salmon from John Day Mitigation Facilities.

Background and Progress to Date:

Acclimation facilities reduce the transportation stress of upriver bright fall chinook transported from John Day Mitigation facilities for release above John Day Dam.

During the first 2 years of the Fish and Wildlife Program, disagreements among affected parties over the location of the acclimation ponds made it difficult for BPA to implement this Measure. When the Council amended the Program in 1984, it provided for: (1) an agency and Tribal plan to be approved before any construction; and (2) an evaluation of temporary acclimation ponds.

In FY 1986 BPA initiated a site survey of 10 candidate acclimation facility sites (Project 86-82) to assist the agencies and Tribes in developing their plan. The joint agency-Tribal work group and the Council have been provided the completion report for the site study completed under Project 86-82. They have selected Ringold Springs as the final site to be used for acclimation.

Plans:

BPA plans to fund the design, construction, and evaluation of the John Day Temporary Acclimation ponds, once the Fish and Wildlife agencies and Tribes have developed the acclimation pond plan and the plan has been approved by the Council. BPA removed Project 89-16, Temporary John Day Acclimation Facility, from the FY 1990 and 1991 AIWP and did not include it in the FY 1992 AIWP. Ringold Hatchery Site Enhancement and Water Development is an EIP project for 1993.

I. COMPLETED PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS
83-313	Pen Rearing of Upriver Fall Chinook Salmon – USFWS Project Officer: A. Ruger Objectives: To evaluate the effectiveness of rearing Upriver Bright Fall Chinook (URBFC) salmon in net pens.	Expected Completion Date: Sept. 29, 1992 Results/Conclusions: URBFC salmon can effectively be reared in Columbia River backwaters with net pens, but the actual evaluation of ocean and freshwater contribution and escapement has yet to be completed.

II. FY 1992 ONGOING PROJECTS

None.

III. NEW PROJECTS

None.

4.15.1 DESIGN AND CONSTRUCTION OF YAKIMA PRODUCTION PROJECT (Upon Council Approval, Fund Beginning in FY 1988)

803(d) **[Abstract] BPA shall fund the design and construction of a hatchery for salmon and steelhead enhancement in the Yakima River Basin and elsewhere as described in Section** 503(c)(2), 703(f)(3), **and** 803(g)(3).

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To construct a hatchery to protect wild stocks and to enhance depressed stocks by using hatchery-reared fish to reseed underutilized habitat. The project will test the principles of supplementation, maintain genetic diversity, and increase harvest opportunities.

Background and Progress to Date:

BPA will fund the design, construction, operation, and maintenance of the Yakima production facility. The facility will enhance the fishery for the Yakima Indian Nation and for other harvesters by supplementing natural runs. In November 1987, the Council completed the facility master plan, and BPA began predesign in November 1987. Predesign was completed in April 1990. Final design will be completed by October 1993.

BPA will also fund several other related studies, including a study to determine the feasibility of establishing anadromous fish runs above Cle Elum Dam (Project 86-45). The results of this project will directly influence the size and production profile of the Yakima outplanting facility. Another study (Project 87-136) will determine the applicability of acclimating fall chinook salmon in irrigation canals prior to release. Additional studies will be initiated when defined by the hatchery science team. The science team, a component of the Yakima Hatchery Technical Work Group (TWG), will develop objectives for the supplementation program and the associated monitoring and evaluation program. Projects will be identified by the TWG and implemented to answer questions resulting from the experimental design. All projects are integral to the overall experimental/supplementation program and should not be regarded as separate or distinct studies.

Plans:

1. **National Environmental Policy Act (NEPA) compliance for hatchery construction was completed in April 1990. An EIS will be conducted on operational and siting issues. Completion expected October 1993.**

2. **BPA will fund design, construction, operation, and maintenance of the hatchery:**

   Predesign: 11/87 - 3/90
   Final design: 8/90 - 10/93
   Construction: 11/93 - 12/97
   O & M: Begin 12/93 **and continue**

3. **Facility expected to be partially operational in FY 1994.**

I. COMPLETED PROJECTS

None.

II. FY 1992 ONGOING PROJECTS

PROJECT OR TASK NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
86-45	Yakima Hatchery: Cle Elum Study - NMFS Project Manauer: T. Clune Objectives: Determine the feasibility of establishing sockeye salmon above Cle Elum Dam.	Date initiated: October 1986 Results/Conclusions: Eggs have been collected from Wenatchee River brood-stock since 1987. Eggs are incubated and juveniles reared at the NMFS Montlake Lab in Seattle. Juveniles have been released in and below Lake Cle Elum and performance evaluated at Prosser and McNary Dams. Three adult sockeye returned to the Yakima River in 1991.	1. 1993: Release 1991 brood year with CWT and PIT tags. 2. Continuing: Evaluate survival of tagged fish. Continue through 1994. 3. Develop juvenile bypass system. 4. Determine the mechanism to trigger the emigration response.
88-115	Yakima/Klickitat Production Facilities Design and Construction Project Manaaer: T. Clune Objectives: Continue design for Yakima/Klickitat Production Facilities.	Date Initiated: FY 1988 Results/Conclusions: Completed predesign report April 1990. Presented report to Council. Initiated EIS December 1990.	FY 1992: Continue final design and conduct E.S. FY 1993: Complete final design and EIS.

PROJECT OR TASK NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
88-120	Yakima and Klickitat Basin Artificial and Natural Production Enhancement Program – YIN Proiect Manager: T. Clune Proiect Biolooist: T. Vogel Obiectives : Provide for participation of YIN, WDF, and WDW in development of a natural and artificial production program.	Date Initiated: October 1987 Results/Conclusions: Agreement executed; participation in hatchery TWG and public involvement. Project 87-136, Yakima Hatchery: Wapato Canal has been consolidated with Project 88-120.	1. Continuing: Collect baseline data for chinook salmon and steelhead natural production in Yakima basin. 2. Continue through production facilities construction. 3. Assist in the development of the Yakima monitoring and evaluation program.
88-123	Yakima Hatchery Coordination– Roza Irrigation District. Project Manaaer: T. Clune Objectives: Provide for technical assistance from Roza Irrigation District on hatchery project.	Date initiated: February 1988 Results/Conclusions: Good participation and input from irrigation entities.	FY 1992: Participate in public involvement, TWG, and water analysis. FY 1993: Continue coordination activities.
89-82	Experimental Design – WDF Proiect Manaaer: T. Clune Obiectives: Refine experimental features of Yakima Hatchery Project. Develop genetic guidelines for stocks of salmon and steelhead for Yakima Basin supplementation program. Develop a smolt trap for the iower Yakima River to determine distribution of fall chinook juveniles.	Date Initiated: June 1989 Results/Conclusions: Initial experimental design has been completed. Project 90-66 and 90-67 have been consolidated with this project.	FY 1992: Refine experimental design. Develop genetic guidelines. Develop smolt trap and begin monitoring. FY 1993: Refine experimental design and assist in the development of the monitoring and evaluation program. Continue smolt monitoring.

PROJECT OR TASK NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
89-89	Radiotelemetry Study - NMFS Project Manager: T. Clune Project Biologist: T. Vogel Objectives: Determine the distribution of distinct stocks of Yakima Basin steelhead and spring chinook.	Date Initiated: June 1989 Results/Conclusions: Initial results indicate up to 30% of steelhead entering the river do not survive to spawning.	FY 1992: Continue radio tagging and monitoring. FY 1993: Continue radio-tagging and monitoring.
89-105	Species Interaction Study - WDW Project Manager: T. Clune Project Biologist: T. Vogel Objectives: Determine the effect of anadromous fish production on resident fish. Refine experimental design features of Yakima Hatchery Project.	Date Initiated: September 1989 Results/Conclusions: Data collection ongoing. Initial experimental design has been completed. Project 89-83 has been incorporated into this project.	FY 1992: Continue study and assist in the development of the monitoring and evaluation program. FY 1993: Continue study and assist in the development of the monitoring and evaluation program.
90-58	Project Leader Function - Consultant Project Manager: T. Clune Objectives: Project was requested by Council to coordinate identification and resolution of fishery management issues associated with the Yakima/Klickitat Production Project. The Project Leader was appointed by the YIN, WDF, and WDW.	Date Initiated: FY 1990 Results/Conclusions: Project progressing satisfactory.	FY 1992: Continue project. FY 1993: Continue project.

PROJECT OR TASK NUMBER	TITLE	STATUS	SCHEDULE AND MILESTONES
90-64	Klickitat River Monitoring Project Manaoer: T. Clune Project Bioloaist: T. Vogel Objectives: Monitor spring chinook and steelhead smolts in the hatchery supplementation program. Coordinate with MEG, and supplementation TWG's.	Expected Start Date: March 1992 Results/Conclusions: None at this time New project for FY 1992. Delayed 1990 and 1991.	FY 1992: Develop program and initiate monitoring. FY 1993: Continue monitoring.
90-65	Juvenile Monitoring Trap Calibration – NMFS Proiect Manaoer: T. Clune Proiect Biologist: T. Vogel Objectives: Calibrate Prosser smolt trap for inriver vs. Canal distribution of outmigrating salmon and steelhead.	Date Initiated: FY 1990 Results/Conclusions: Smolt Monitoring procedures (Prosser facility) developed	FY 1992: Continue calibration studies. FY 1993: Continue survival studies and assist in the development of the Yakima monitoring program.
90-69	Yakima Hatchery Final Design – Consultant Proiect Manaaer: T. Clune Objectives: Final design of Yakima Basin Facilities.	Date Initiated: FY 1991 Results/Conclusions: Final design ongoing. Delayed due to EIS.	FY 1992: Continue final design. FY 1993: Continue final design. FY 1994: Begin production facility construction.

PROJECT OR TASK NUMBER	TITLE	STATUS	SCHEDULE AND MILESTONES
90-71	Smolt Loss Evaluation Proiect Manaaer: T. Clune Project Bioloaist: T. Vogel Obiectives: To determine smolt losses in the Yakima River due to various factors including predation, temperature, and passage conditions.	Expected Start Date: FY 1992 Results/Conclusions: None at this time	FY 1992: Begin smolt loss evaluation. FY 1993: Continue smolt loss evaluation.
91-45	Adult Trap Predesign – USBR Proiect Manaaer: T. Clune Obiectives: Design and construction of adult trap facilities for the Yakima Hatchery project.	Date Initiated: FY 1991 Results/Conclusions: None at this time.	FY 1992: Complete final design and construct traps. FY 1993: Complete EIS.
91-48	Evaluation of Environmental Impacts of the Yakima Production Program – BPNL Proiect Manaaer: T. Clune Obiectives: This project will evaluate the environmental impacts of the acclimation pond siting and operations of the Yakima Production Project. The information will be used as the basis for an Environmental Impact Statement.	Date Initiated: January 1991 Results/Conclusions: None at this time.	FY 1991: Initiate EIS. FY 1992: Continue EIS. FY 1993: Complete EIS.

PROJECT OR TASK NUMBER	TITLE	STATUS	SCHEDULE AND MILESTONES
91-55	Supplementation Fish Quality Proiect Manaoer: T. Clune Proiect Bioloaist: T. Vogel Obiectives: Define criteria for setting quality of hatchery fish for supplementation. Conduct studies against established criteria.	Date Initiated: July 1991 Results/Conclusions: None at this time	FY 1992: Define criteria and initiate research to determine if the criteria are significant. FY 1993: Conduct behavioral studies at prototype facilities.
91-59	Habitat Inventory and Food Abundance – CWU Proiect Manaoer: T. Clune Objectives: This project will complete habitat inventories, determine food abundance, and integrate data into the Central Washington University GIS.	Date Initiated: July 1991 Results/Conclusions: None at this time	FY 1992: Complete habitat data collection. Continue food abundance data collection. FY 1993: Continue data collection in cooperation with the WDW Interaction Study.
92-14	Habitat Definition, Assessment and Improvement Proiect Manaaer: T. Clune Obiectives: Define habitat criteria important to the experimental program. Measure habitat parameters based on established criteria. Prioritize and begin improvements of critical habitat.	Expected Start Date: March 1992 Results/Conclusions: None at this time.	FY 1992: Define critical uncertainties for estimating carrying capacity and begin the determination of critical limiting factors. FY 1993: Identify, prioritize, and implement habitat improvements necessary to achieve natural production goals.

PROJECT OR TASK NUMBER	TITLE	STATUS	SCHEDULE AND MILESTONES
92-2]	**Experimental Design Development – cwu** Project Manaqer: **T. Clune** Objectives: **Assist in the refinement of the project experimental design and annual work plans for the Artificial Environment and Natural Environment Task Teams.**	**Date Initiated: November 1991** **Results/Conclusions: None at this time.**	**FY 1992: Assist in the refinement of the experimental design, and initiate behavioral studies.** **FY 1993: Continue expermental design and behavioral studies.**

III. **DEFERRED PROJECTS**

PROJECT OR TASK NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
92-5	**Evaluation of the Yakima Production Project.** Project Manaser: **T. Clune** Objectives: **The objectives are to evaluate the ongoing steelhead and fall chinook acclimation programs. Determination will be made as to the best methods of acclimation to avoid adult straying.**	**Deferred to 1994**	**FY 1992: Delayed to FY 1994 during the preparation of project EIS.**

IV. NEW PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
90-72	Computer Information System Quality Control Program Development Project Manager: T. Clune Project Biolosist: T. Vogel Objectives: Develop CIS for Yakima/Klickitat supplementation program.	New FY 1993	FY 1992: Work done under project 90-58 in 1992. FY 1993: Refine program, coordinate with Basin CIS program.
90-74	Yakima Monitoring and Evaluation Program Project Manager: T. Clune Project Biologist: T. Vogel Objectives: Implement monitoring and evaluation of Yakima salmon and steelhead stocks pursuant to the experimental design. The experimental program will be refined based upon information obtained. Includes determining specific fish marking and detection requirements and the acquisition and installation of necessary equipment to mark and detect salmon and steelhead.	New FY 1993	FY 1992: Work conducted under 88-120 for FY 1992. FY 1993: Initiate monitoring and evaluation.

4.16.1- NORTHEASTERN OREGON SPRING CHINOOK OUTPLANTING FACILITY
4.16.2 (Fund Development of Master Plan in FY 1988 or Earlier; Upon Council Approval, Fund Design and Construction>

703(f)(5) **BPA shall fund planning, design, construction, operation and maintenance, and evaluation of artificial production facilities to raise salmon and steelhead for enhancement in the Hood, Umatilla, Walla Walla, Grande Ronde, and Imnaha rivers in Oregon. The artificial production facilities shall be used to supplement natural production in these rivers.**

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To fund Master Plan, design, and construction of the Northeastern Oregon salmon and steelhead facilities.

Background and Progress to Date:

The measure provides for outplanting of about 2.3 million to 3.0 million juveniles in the five Oregon rivers identified in the measure. ODFW, CTWSIR, CTUIR and NPT are preparing Master Plans for each subbasin under contract to BPA. The Master Plans may identify broader production needs in the basin, not all of which would be addressed by this project. Because of independent utility and differences in timing, implementation of the "project" has been disaggregated into discrete projects by subbasins, or groups of subbasins. The Hood River Master Plan (which was connected to Measure 4.17.6, Pelton Ladder> was completed in spring 1992 and submitted to the Council, followed by the Umatilla Master Plan, then by the plans for the remaining three subbasins. Phase II of the plans is to be completed by spring 1992. BPA hired a consulting engineer to conduct site feasibility studies and conceptual design for all subbasins except Hood River, which is being done by ODFW. Work commenced in December 1990 and is to be completed by September 1992.

Plans:

The Master Plans, including siting and conceptual design, are scheduled to be completed by the end of FY 1992 for submittal to the Council. The Council approval process and BPA environmental work will be conducted simultaneously for each discrete project portion. Upon completion of environmental work, BPA will proceed with design, construction, operation, and monitoring of the facilities.

Hood River/Pelton Hatchery Master Plan decisions tobemadeby Council in April 1992.

I. COMPLETED PROJECTS

None.

II. FY 1992 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
88-53	NEOH Siting/Conceptual Design – Consultant Project Officer: J. Marcotte Objectives: Conduct site feasibility and conceptual design for NEOH facilities. These products will be integrated into the Master Plan submitted to Council. This objective for Umatilla being accomplished under separate contract in conjunction with Umatilla Satellite Facilities.	Date Initiated: December 1990 Results/Conclusions: Contractor oriented and underway as of February 1991. Delays were encountered due to difficulties clarifying program definition and goals, especially in light of ESA influence. Two EIP proposals were folded into project and contract was modified to allow work to occur. Draft siting report submitted March 1992.	1. Spring 1992: Final sites and conceptual design, Umatilla. 2. Spring 1992: Cultural resource investigations, digital rapping, groundwater test wells completed (GR, Imn, WW). 3. June 1992: Final siting report due. 4. June 1992: Draft concept design. 5. September 1992: Final siting report due. 6. FY 1993: Clarify NEPA compliance issues and begin.
88-53-1 88-53-2 88-53-3 88-53-4	Northeastern Oregon Artificial Production Facilities – CTUIR/ CTWSIR/NPT/ODFW Project Officer: J. Bauer Objectives: Fund Master Plan of artificial production program and facilities for NEOH project.	Date Initiated: Planning began in FY 1988. Results/Conclusions: Contract in place to produce Master Plans. Phase I complete April 1990. Phase II began May 1990.	1. FY 1991-1992 (phased): Complete Phase II, including production objectives, monitoring and evaluation, genetic risk assessment, site, and conceptual design of facilities. 2. FY 1991-92: Complete Master Plans. 3. FY 1991-1992: Obtain Council approval of Master Plans.

III. NEW PROJECTS

Note that EIP proposals 2.2 Wenaha/Minam Adult Trapping and 2.3 Portable Trapping and Acclimation have been folded into the NEOH project.

4.17.1 JUVENILE RELEASE/ADULT COLLECTION AND HOLDING FACILITIES ON UMATILLA RESERVATION
(Operate, Maintain)

703(f)(1) **[Abstract] BPA shall fund the Confederated Tribes of the Umatilla Reservation (CTUIR) to operate and maintain the Bonifer and Minthorn juvenile release and adult collection and holding facilities on the reservation.**

ACTION ITEM ACTIVITY SUMMARY

Objectives:

To fund operation, maintenance, and evaluation of the Bonifer and Minthorn facilities.

Background and Progress to Date:

The facilities are to acclimate and imprint juvenile salmon and steelhead before release into the Umatilla River, thereby increasing survival of juveniles and the homing ability of adults. The facilities are also used to hold adults before artificial spawning. When constructed, the Umatilla Hatchery (Project 84-33; Action Item 4.17.2) will rear juveniles for acclimation at the Minthorn and Bonifer facilities. Currently, juveniles from other hatcheries are acclimated at the facilities.

BPA has funded the operation and maintenance of the Bonifer and Minthorn facilities since construction in 1983 and 1985, respectively. During this time, about 2.0 million fall chinook, 1.0 million spring chinook, 800,000 coho salmon, and 350,000 steelhead juveniles have been acclimated and released. A study to evaluate the fishery benefits and operation of the acclimation facilities was begun in FY 1987.

Plans:

BPA will continue funding operation, maintenance, and evaluation of the facilities through an Intergovernmental Agreement with the CTUIR as long as there is an Action Item calling for BPA funding. BPA expects that results of the evaluation study will be used by the CTUIR to determine the actual fishery benefits of acclimation, to select effective juvenile release strategies, and to improve operational efficiency.

I. COMPLETED PROJECTS

None.

II. FY 1992 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
83-435	Minthorn and Bonifer Springs Summer Steelhead Juvenile Release and Adult Collection Facilities - CTUIR Project Officer: J. Bauer Objectives: To operate, maintain, and evaluate the Minthorn and Bonifer facilities for the acclimation and imprinting of juvenile anadromous salmonids and the collection and holding of adults.	Date initiated: FY 1983 Results/Conclusions: Approximately 71,800 fall chinook, 194,800 spring chinook, 132,400 coho, and 59,800 steelhead juveniles were acclimated and released during FY 1990. No results of the facility evaluation study are available yet.	1. Continuing: BPA will fund operation, maintenance, and evaluation of the facilities. 2. Continuing: Contractor will provide an annual operational report and preliminary results of the evaluation study in the Project's annual report. 3. FY 1993: BPA will publish the final results of the evaluation study in a final report.

III. NEW PROJECTS

None.

4.17.2 EXPANDED UMATILLA HATCHERY
(Fund, upon Council Approval>

703(f)(1)(A) [Abstract] **BPA shall fund the construction of a facility to test the efficacy of oxygen supplementation hatchery techniques to produce up to 290,000 pounds of summer steelhead and chinook salmon smolts. These smolts shall be for release in the Umatilla juvenile release and adult collection holding facilities and for outplanting in the upper Umatilla River to enhance natural and hatchery production. Prior to construction of this facility, the ODFW and the CTUIR will develop a facility master plan for Council approval.**

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To provide an improved contribution of anadromous fish production from the Umatilla River to the Columbia River Basin.

Backsround and Progress to Date:

The facilities are to produce 290,000 pounds of salmon and steelhead juveniles for release in the Umatilla Subbasin **to enhance natural and hatchery production. Hatchery production may also be used in other subbasins. A secondary purpose of the hatchery is to demonstrate oxygen supplementation technology. BPA began funding hatchery design in FY 1986 and hatchery master planning in FY 1987. The CTUIR and ODFW have been conducting a release program using fish from other hatcheries since 1982, and intend to continue until this hatchery is operational. The final design was completed during 1988, and the Master Plan was approved in October 1989. Agreement was reached in 1988 that the hatchery will be operated by ODFW as a joint facility with Irrigon Hatchery.**

The final design estimates revealed that the hatchery will cost more than originally expected. The cost increases were due to design evolution, delays in project implementation, changing site conditions at the well, and water production shortfalls. Costs **rose** about **$4.0 million to total $12.0 million. Construction began in March 1990 and was completed in September 1991. ODFW began the portion of O&M contract dealing with construction monitoring and equipment acquisition in FY 1990. Draft Year 1 Annual Operating Plan was tentatively approved in July 1991. ODFW took "beneficial** occupancy" of the hatchery in July 1991.

Umatilla Hatchery began operations in August 1991 with the first batch of chinook eggs delivered to the incubators. The first year saw rearing of about 100,000 spring chinook fingerlings, over

2.5 million fall chinook fry and about 200,000 steelhead. In late winter, the operator, ODFW, discovered that the well water system would only develop about 9000 gpm, about two-thirds of the design capacity. Also, adjoining Irrigon Hatchery was experiencing water supply shortages, Both hatcheries use the same aquifer, which is directly recharged by the river. Preliminary investigations by USACE indicate a strong correlation between John Day Pool level and aquifer flow. Water shortages have corresponded to the reservoir levels being lowered to accomodate construction at McNary Dam. Future drawdowns for smolt passage could seriously affect the ability of these two hatcheries to meet production goals. The USACE is conducting a one year study to establish cause and effect and to identify possible sources of supplementary water. Results of this study will help determine future courses of action for the hatchery program.

Planning for satellite facilities began in FY 1990, with the need to have one or two additional chinook adult holding facilities on line before the mid-1990s. BPA contracted for site feasibility and conceptual design of facilities for direct release, satellite rearing/acclimation, and adult holding in December 1990. Final products are due in Spring 1991. This project experienced some delay in FY 1991 due to difficulty in obtaining mapping and groundwater data needed to finalize effort.

Plans:

Continue operational shakedown. Begin M&E studies. Complete conceptual design and NEPA for satellite facilities. Conduct USACE water supply study. BPA plans to dedicate Umatilla Hatchery on May 8, 1992.

I. COMPLETED PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS
84-33-3	Umatilla Hatchery Tribal Fish Culture Training Program – CTUIR Project Officer: J. Marcotte Objectives: Train up to eight tribal personnel to qualify as Hatchery Technicians-l for employment in Umatilla Hatchery Program facilities.	Date Completed: FY 1992 Results/Conclusions: Original objectives of 18 months tech experience were met in March 1991. 3 OJT were qualified. Hatchery staff selections made in October 1991. Ore OJT hired as a Tech 1.

II. FY 1992 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
84-33	Umatilla Hatchery Construction and O&M – USACE Project Officer: J. Marcotte Objectives: Design and construct the Umatilla Hatchery.	Date Initiated: FY 1986 Results/Conclusions: Council approved hatchery predesign in October 1986. Hatchery site next to existing Irrigon Hatchery was selected in cooperation with Morrow County. Umatilla Hatchery Environmental Assessment was issued February 1987. FONSI issued April 1987. Council amended Program to expand hatchery production to 160,000 pounds and added salmon to production. Council amended program to expand production to 290,000 pounds and test efficiency of 02 supplementation. Final designs completed. Master Plan complete February 1989. Council approved Master Plan in October 1989. O&M contract finalized in spring 1990; ODFW began operation during summer 1991.	1. FY 1993: Continue operational shakedown. 2. Spring 1992: Mark tirst hatchery releases. 3. Monitoring and evaluation studies underway for year 1. 4. USACE study of groundwater/reservoir level relationship.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
91-14	Umatilla Satellites - Planning, Siting, Design, and Construction - Consultant Project Officer: J. Marcotte Objectives: Provide complementary facilities for adult holding for broodstock purposes or required by the Umatilla artificial production program, and for direct release to river Secondary objective may be to provide recovery/acclimation benefits to smolts, trucked from Umatilla Hatchery, prior to release.	Date Initiated: FY 1991 Results/Conclusions: A consulting engineer was hired in December 1990 to conduct site feasibility and conceptual design for satellite facilities. Draft siting report complete in April 1991. Draft concept design report submitted in January 1992. Siting effort included extensive test well drilling, aerial mapping, and cultural resource investigations. Conceptual design for 2 release sites was accelerated to allow early completion so Spring 1992 releases could be made as planned.	1. March 1992: Install temporary direct release improvements at 2 project sites to allow planned spring ChF, ChS releases. 2. Spring 1992: Siting and conceptual design; project definition, based on hatchery program projections; siting study in Umatilla basin. 3. FY 1991-92: Complete environmental work, including cultural resource investigations. 4. FY 1992-93: Predesign and final design; begin construction. 5. FY 1994: Complete construction.
90-5	Umatilla Hatchery Monitoring and Evaluation - ODFW Project Officer: J. Bauer Objectives: 1. Comparison of production for fall chinook (ChF) and summer steelhead (StS) in 02 and standard rearing systems.	Date Initiated: 1991 Results/Conclusions: Releases only in operation at this time.	1. FY 1991: Initiate operation of Umatilla Hatchery and begin rearing and marking ChF, ChS, and StS smolts. 2. FY 1992: Release first-year production of ChF of and age-0 ChS and StS from 1991 and 1992 broods. Initiate sampling of natural production areas. 3. FY 1993: Release first full-term ChS smolts and second-year production of ChF, ChS, and StS smolts. Continue sampling of natural production areas.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
90-5 (cont.)	2. Smolt-adult survival rates for ChF and StS in 02 and standard rearing systems. 3. Comparison of production and survival of summer chinook (ChS) full-term and age-0 smolts. 4. Estimation of natural production success for ChS and ChF. 5. Assess changes in genetic and life history characteristics of wild StS as a result of supplementation.		
92-XX	Umatilla River Natural Production Monitoring and Evaluation - CTUIR Project Officer: J. Bauer Objectives: 1. Define carrying capacities for anadromous stocks. 2. Determine genetic components for wild steelhead. 3. Monitor interaction of hatchery steelhead and wild steelhead.	Expected Start Date: July 1932 Results/Conclusions: None at this time.	1. 1992: Begin carrying capacity investigation. Begin genetic evaluation of wild steelhead. 2. 1993: Develop population transects to monitor hatchery releases.

III. NEW PROJECTS

None.

4.17.3 LOW-CAPITAL PROPAGATION FACILITY ON NEZ PERCE RESERVATION (Design/Begin Construction by May 1989)

703(g)(2) **Upon approval by the Council of design and construction plans for low-capital propagation facilities on the Nez Perce Reservation, Bonneville shall fund the construction, operation, and maintenance of those facilities. The Nez Perce Tribe will develop the facility plan and will incorporate the information provided under Section** 703(g)(1).

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To design and construct a low-capital production facility to enhance fisheries on Nez Perce Reservation.

Background and Progress to Date:

Through construction of facilities for spawning, incubation, and rearing of chinook salmon and steelhead trout, the Nez Perce Tribe (NPT) **seeks to re-establish its salmon and steelhead fishery. This fishery has nearly been destroyed through construction and operation of dams and poor land use practices, including agriculture, logging, road construction, and mining.**

Work began on this measure in September 1983. The initial phase of the project, which developed an artificial propagation facility feasibility study, was completed in January 1985. Site investigations were conducted in FY 1988, FY **1989, and FY 1990.**

Plans:

Preliminary design scheduled to begin in FY 1990, followed by environmental evaluation and final design in FY 1993. Project completion scheduled for FY **1994.**

I. COMPLETED PROJECTS

None.

II. FY 1992 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
83-350	Nez Perce Low-Capital Production Facility - NPT Project Officer: S. Levy Objectives: Design and construct a low-cost salmon propagation facility on the Nez Perce Reservation.	Date Initiated: FY 1983 Results/Conclusions: None at this time.	1. FY 1991: Amend measure to expand scope of facility, and allow construction off reservation. Continue preliminary design. 2. FY 1993: Complete NEPA assessment. Initiate final design. 3. FY 1993: Complete final design. 4. FY 1993: Begin construction, complete project, and begin operation and maintenance.
88-126	Nez Perce Technical Support - IDFG Project Officer: S. Levy Objectives: To provide technical support on planning for Nez Perce Hatchery project.	Date Initiated.: January 1988 Results/Conclusions: None.	On-going technical support will continue through FY 1992.

III. NEW PROJECTS

None.

4.17.4 HABITAT SURVEY ASSOCIATED WITH ACTION ITEM 4.17.3 (Fund)

703(c)(3) **[Abstract] Bonneville shall fund an evaluation of the lower mainstem Clearwater River to study existing habitat and temperature regimes for spawning, incubation, and rearing for salmon and steelhead. Proposals for outplanting from the Nez Perce low-capital propagation facilities [703(g)(2)] will be based on the evaluation.**

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To evaluate the habitat and temperature regimes in the lower mainstem Clearwater River; the evaluation will determine the feasibility of establishing a run of anadromous fish.

Background and Progress to Date:

When constructed, a low-capital salmon and steelhead propagation facility (Action Item 4.17.3) on the Nez Perce Reservation will produce fish for outplanting in reservation streams. The mainstem Clearwater River habitat study will try to determine what species can successfully be outplanted in the mainstem Clearwater River and to identify opportunities to enhance existing steelhead rearing. BPA expects that the NPT will use study information to plan production and outplanting strategies for the low-capital facility.

BPA began funding a mainstem Clearwater River habitat study (Project 88-15) in October 1987. The study will be completed in April 1992.

Plans:

Upon completion of Project 88-15 in April 1991, Action Item 4.17.4 and measure 703(c)(3) will be completed. No additional projects are planned.

I. COMPLETED PROJECTS

PROJECT NUMBER	TITLE	OBJECTIVES	SCHEDULE AND MILESTONES
88-15	Mainstem Clearwater River Study: Assessment for Salmonid Spawning, Incubation, and Rearing - NPT Project Officer: J. Gislason Objectives: Evaluate the existing anadromous fish habitat and the temperature regime in the lower Clearwater River to determine 1) the feasibility of establishing a run of anadromous species in the lower river, and 2) opportunities for enhancing steelhead rearing.	Expected Completion Date: April 1992 Results/Conclusions: NPT completed Phase I of the project, a literature review and temperature/flow data analysis, and began implementing Phase II field studies in FY 1989. The Phase I analysis of historical temperature data indicated that Lower Clearwater River temperatures are generally suitable for fall and summer chinook salmon reproduction. Instream flow field measurements, incubation studies, substrate samping, temperature modeling, and data analysis were comple-ed in FY 1990 and FY 1991. Results are available in annual reports (DOE/BP-37474-1 and DOE/BP-37474-2). The Final Report is expected to be printed and available for distribution in late May 1992.	1. FY 1992: Complete Final Report by April 15, 1992.

II. FY 1992 ONGOING PROJECTS

None.

III. NEW PROJECTS

None.

4.17.5 WILLAMETTE BASIN STUDY PLAN
(Fund; Coordinate with Supplementation Work Plan)

703(h)(2) **[Abstract] BPA shall provide funds to study the best method of supplementing natural stocks of spring chinook with hatchery stocks in the Willamette River.**

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To fund a study to supplement the Willamette spring chinook runs without adversely affecting natural runs of resident fishery or the genetic integrity of the Columbia Basin fish populations.

Progress to Date:

Supplementation, or outplanting, has been identified by the agencies, Tribes, and the Council as one of the main ways to increase Columbia River salmon and steelhead runs. This project aims to develop the best methods for supplementing spring chinook in the Willamette Basin in order to develop and maintain maximum sustained yield and to maintain genetic diversity.

Phase I, completed during September 1985, surveyed the literature of outplanting efforts and developed a detailed study design for evaluating possible Willamette Basin strategies. Phase II proposed planting fry, presmolts, and adults in areas with different production potential. The 9-year evaluation would determine which life stage of spring chinook to outplant for maximum survival.

A major review included the study design and the relationship to Section 703(h)(1), the overall work plan for supplementation. Section 703(h)(2) concerns only Willamette Basin spring chinook. The review, completed in FY 1986, concluded that the initial study design viewed outplanting as a potential continuing effort to supplement hatchery production by using hatchery surpluses. However, both Measures 703(h)(1) and 703(h)(2) view outplanting as a temporary means of enhancing natural production or re-establishing natural runs. Rebuilding natural runs was not addressed in the study plan, though it is one of the highest priorities of the Program.

The impacts of outplanting on resident fish will not be answered by this study design. BPA believes, however, that these impacts should be addressed in supplementation research.

Plans:

BPA submitted the study plan to the STWG for review, realizing the relationship with 703(h)(1) that this study should address. Measure 703(h)(2) was not a high priority in the STWG Five-Year Work Plan. However, BPA will develop a work plan and initiate research when and if the Council's Program identifies it is a high priority for achieving the objectives of Supplementation or such work is required to answer critical uncertainties of supplementation.

Projects:

No BPA-funded projects are planned for FY 1993.

4.17.6 PROPAGATION OF SALMON/STEELHEAD IN PELTON DAM FISH LADDER
(Fund, upon Council approval of Master Plan>

703(g)(3) **BPA shall fund propagation of salmon and/or steelhead smolts in the 2.8-mile-long fish ladder located at Pelton Dam on the Deschutes River in Oregon. This production shall be in addition to the fish propagated in the ladder by Portland General Electric to mitigate the effects of Pelton and Round Butte dams and will not affect the mitigation responsibilities of that company. The Oregon Department of Fish and Wildlife and the Confederated Tribes of Warm Springs will develop a master plan for Council approval prior to BPA funding of design and construction. The master plan should contain the same type of information as in other hatchery master plans for Yakima, Umatilla, and northeastern Oregon facilities.**

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

Fund the design and construction of propagation facilities at the Pelton Dam ladder; fund the propagation of salmon and/or steelhead.

Background and Progress to Date:

The agencies and tribes have completed the Master Plan and BPA has submitted it to the Council for action.

Plans:

When the Council approves the agency and Tribal joint master plan for the Pelton Dam ladder rearing, BPA will form a work group to assist in the completion of this Action Item. The design and construction will follow the recommendation of this work group. When the facility is constructed, an operation and maintenance agreement with the operator will be established.

I. COMPLETED PROJECTS

None.

II. FY 1992 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
89-29	**Propagation in Pelton Dam Ladder - ODFW** Project Officer: J. Bauer Objectives: 1. To experimentally rear spring chinook smolts in Pelton Ladder. 2. To determine the capacity for additional rearing of smolts. 3. To produce spring chinook smolts for Deschutes River and other acceptable basins to meet Program production goals.	Date Initiated: September 1989 Results/Conclusions: Master Plan has been completed by agencies and tribes. BPA submitted Master Plan to Council for action in summer of 1992.	1. FY 1991: After Council approval of the ODFW-CTWSIR master plan, BPA will fund rearing of fish in the Pelton Dam fish ladder. 2. FY 1992: Begin rearing spring chinook smolts. 3. FY 1994: First smolt releases. 4. FY 1998: Final report on experiment to determine ladder rearing capacity.

III. NEW PROJECTS

None.

4.21 HATCHERY RELEASES IN UPPER COLUMBIA
(Upon Council Review of Reprogramming Plan, Fund Releases)

703(d)(2) After Council review of the reprogramming plan developed by the fish and wildlife agencies and Indian Tribes, BPA shall provide funds to transfer a portion of the fish from existing lower Columbia River hatcheries to release sites in the upper Columbia River system to assist in restoring naturally spawning stocks, as provided in that plan.

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To implement the reprogramming plan (approved by the Council> to assist in the rebuilding of upriver fish runs.

Background and Progress to Date:

BPA understands that the fishery agencies and Tribes have not submitted the plan tc the Council. When the Council has reviewed the plan, BPA will proceed with funding of hatchery releases in the upper Columbia River. BPA still awaits Council review and approval of the plan.

Plans:

Future projects and required funding will be identified after the Council approves the reprogramming plan.

Projects:

No defined projects for FY 1993.

5.1 KNOWN STOCK FISHERIES FIVE-YEAR DEMONSTRATION PROGRAM
(Co-Fund to Test Electrophoresis: Begin 1985 Ocean Fishing Season or Subsequent Seasons)

503(b)(1) The Council supports in-season management of mixed-stock fisheries using electrophoresis to profile the contribution of the different upriver stocks. BPA shall share funding with the fishery management agencies of a five-year program that demonstrates the effectiveness of this technique in profiling the ocean fisheries more accurately and in refining harvest regulations to protect Columbia River stocks. At the conclusion of the five-year program, the fishery management agencies will propose a plan for further action.

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To demonstrate the effectiveness of the electrophoresis technique for profiling the contribution of individual Columbia River stocks in mixed populations.

Background and Progress to Date:

BPA contributed funds to a study to perfect the electrophoresis technique to differentiate fish stocks and to demonstrate its applicability in the Columbia River Basin (Project 79-1). BPA funded further application of this technique (Project 83-451) to determine separate stocks of Columbia Basin anadromous fish. These efforts and those of the fishery management entities have produced a proven electrophoresis technique. This technique is now widely applied in fisheries management and could be applied to profile mixed stock ocean fisheries. The technique may also soon be used to determine whether sturgeon populations in the United States stretches of the Kootenai River are different from those in Canadian waters. BPA therefore believes that further research to improve stock identification methods as part of a hydroelectric mitigation program is unnecessary. Stock identification is now a matter of prescriptive application.

Plans:

BPA has no further plans for this Action Item.

Projects:

None.

6.1 TECHNICAL WORK GROUPS
(Begin to Fund in FY 1987)

206(b)(1) **[Abstract] BPA shall focus its funding of salmon and steelhead research in the next five years in the following areas of emphasis:**

1. **Studying water budget effectiveness and reservoir mortality;**
2. **Controlling disease problems affecting spring and summer chinook;**
3. **Exploring methods for substantially increasing and improving hatchery production at existing hatcheries within the next 10 years; and**
4. **Improving supplementation techniques.**

BPA shall fund technical work groups composed of representatives of the Fish and Wildlife agencies, tribes, hydropower project operators, and BPA, with technical input from other experts, to develop Five-Year Work Plans for each of the areas listed above.

ACTION **ITEM ACTIVITY SUMMARY:**

Objectives:

To fund the establishment of a TWG in each of the four areas of research emphasis and to fund the development of Five-Year Work Plans.

Background **and Progress to Date:**

In 1987, BPA initiated Project 87-307 to fund development of Five-Year Work Plans by the four TWGs **and to fund TWG assistance to BPA in the development, evaluation, and review of requests for proposals, project work statements, and other related documents.**

The Fish Disease TWG, Hatchery Effectiveness TWG, and Supplementation TWG developed Five-Year Work Plans that were approved by the Council in 1988. The Reservoir Mortality and Water Budget Effectiveness TWG agreed on four areas of emphasis: survival and flow relationships, predation, smoltification, and dam operations. As opinion was distinctly divided on the focus of survival and flow relationships, two Work Plans were submitted to the Council in September 1987. The fishery agencies/Tribes plan emphasized long-term monitoring to determine the effectiveness of the Water Budget and examination of the mechanisms of reservoir mortality. The BPA/USACE/PNUCC **plan emphasized shorter-term survival research and simultaneous research on both the extent and mechanisms involved in reservoir mortality. This latter plan also maintains a basal monitoring program.**

In 1990, seven Scoping Groups (SG) **were established under the Implementation Planning Process** (IPP). **The function of the** SG's **was to assist BPA in the scoping and prioritization of new projects,**

including research projects in the Five Year Work Plans, and in the development of requests for proposals. Therefore, BPA no longer needed any assistance from the TWGs, and Project 87-307 was terminated in March 1991.

Plans:

BPA currently has no plans to fund any Program Measure 206(b)(1) TWG activities in FY 1993.

Projects:

None.

6.2 RESEARCH IN THE FIVE-YEAR WORK PLANS
(Begin to Fund in FY 1988)

404
703(e)
703(h)
206(b)

[Abstract] These measures address BPA funding of research, development, and testing of improved fish husbandry practices, rearing operations, release strategies, stock assessment, fish health protection, indices of smolt quality, and hatchery supplementation. Measure 206(b) in the Program directs BPA to focus its funding of salmon and steelhead research in the next five years in the four areas of emphasis described under Action Item 6.1 in BPA's Work Plan. Technical Work Groups in each of the areas of emphasis will develop a Five-Year Research Work Plan for Council approval and BPA funding beginning in FY 1988.

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To fund research identified by the TWGs in the Five-Year Research Work Plans.

Backsround and Progress to Date:

The Council Technical Work Group (TWG) process was instituted to focus research planning in four areas of technical emphasis considered fundamental to the success of the Fish and Wildlife Program. The four TWGs (Reservoir Mortality and Water Budget Effectiveness, Fish Disease, Hatchery Effectiveness, and Supplementation> submitted Five-Year Research Work Plans in 1987 or early 1988 for Council review and approval. BPA began funding projects from the Work Plans in late FY 1988.

Plans:

BPA plans to continue funding ongoing projects through completion.

I. COMPLETED PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS
88-141	Biological Manipulation of Migration Rate and Recovery Rate - The Use of Advanced Photoperiod to Accelerate Smoltification in Yearling Chinook Salmon - NMFS Proiect Officer: W. Maslen Objectives: Assess the effect of advanced photoperiod and release timing on smolt development and migration timing.	Date Completed: 1991 Results/Conclusions: Results from the testing in 1988, 1989, and 1990 show travel time and recovery rates of juvenile yearling chinook can be enhanced through biological manipulation of physiological development. Study was terminated in 1991.
86-118 (Task Order 10)	Feasibility of Satisfying Model Assumptions of the Burnham and Anderson Fish Survival Estimation Techniques Proiect Officer: P. Poe Objectives: 1. Evaluate the practicability of applying the Burnham and Anderson model to improve estimates of smolt survival in the Columbia River system. 2. Evaluate how the practical problems related to conducting the survival experiments may limit the ability to satisfy the model assumptions.	Expected Completion Date: FY 1992 Results/Conclusions: Scoping session reviewed survival estimation techniques in January 1991. "Strawman" experiment(s) completed in FY 92. Project is scheduled for completion; final report in FY 1992.

II. FY 1992 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
82-3	Significance of Predation and Development of Prey Protection Measures for Juvenile Salmonids in the Columbia and Snake River Reservoirs. Project Officer: W. Maslen Objectives: 1. Determine if substandard juvenile salmonids (dead, injured, stressed, diseased, naive) are more vulnerable than standard or normal juvenile salmonids. 2. Develop and test smolt protection measures to control predation on juvenile salmonids by reducing predator-smolt encounters or predator capture efficiency.	Date initiated: 1983 Results/Conclusions: Prey selection experiments in both the laboratory and field are underway! Results, to date, indicate dead prey may be preferred over live. There is no significant difference in selection of injured vs. uninjured smolts, and stressed fish may be more vulnerable to predation than unstressed fish. Research to develop prey protection measures are underway, with focus on bypass release sites.	FY 1991: (1) Continue prey selection experimentation in the laboratory and the field to determine relationship between predation and prey condition and (2) develop and evaluate prey protective measures (e.g., reducing predator-prey encounters, reducing predator feeding efficiency, reduce encounters between prey and predators, etc.).
83-319	Passive Integrated Transponder (PIT) Tag Research – NMFS Project Officer: P. Poe Objectives: 1. Determine the biological feasibility of injecting salmon and steelhead with PIT tags for passage and monitoring research activities.	Date Initiated: 1983 Results/Conclusions: All data to date show that there are no biological problems with the PIT tag. The detection systems and monitors continue to be improved and are working extremely well. Adult chinook salmon with PIT tags have been detected at Lower Granite Dam.	1. FY 1992: BPA wili fund the project through to completion. Biological studies on adult salmon will continue until completed, and monitoring hardware wil! continue to be developed. 2. Continuing: Contractor will finalize biological studies and equipment development and provide evaluation reports annually.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
83-319 cont.	2. Determine biological and engineering feasibility of adult and smolt salmon and steelhead detection facilities for passage monitoring and research activities.		
87-413-2 (Task Order 01772)	Analysis of Historic Data for Juvenile and Adult Salmonids - UW Project Officer: P. Poe Objectives: Phase I of this work will assemble a data base of statistically bounded estimates of survival from smolt to adult and contribution rates to ocean fisheries for Columbia River salmon and steelhead hatchery stocks based on the last 15 years of Coded-Wire Tag (CWT) data. Phase II of this research will consist of the analysis of the adult production and survival data base created in Phase I in relation to riverine factors that affect production and survival. Phase II will be funded upon outcome of Phase I.	Date Initiated: September 1989 Results/Conclusions: A data base of survivals and variances and/or contribution rates of Columbia River hatchery stocks was produced from the assembly and analysis of CWT data under Phase I. Phase II will assemble riverine factors, apply the methods developed under Phase I, and explore multivariate relationships to survival. A report of Phase I activities will be available in FY 1992.	FY 1392: Continue Phase II through to completion.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
89-107	Development of Epidemiological Methods for Use in Quantifying Survival Relationships from PIT Tag Releases of Salmon and Steelhead Smolts – UW Project Officer: P. Poe Objectives: 1. Phase I: Develop epidemiological models and regression estimators, tests of survival relationships, and tests of assumptions and goodness-of-fit statistics. Phase II: Determine location and number of required PIT-tag facilities, develop sample size calculations for PIT tag release studies, conduct computer studies of robustness of models, develop alternative scenarios for PIT tag studies, and develop computer package for statistical design and analysis.	Date Initiated October 1989 Results/Conclusions: Under Phase I, the statistical capabilities to analyze complex statistical models for PIT tag release studies that incorporate pre-release covariates were developed. A report of Phase I activities will be available in FY 1992.	1. FY 1992: Continue Phase II tasks. 2. FY 1993: Continue Phase II through to completion.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
90-77	Development of a System-Wide Predator Control Program - ODFW Proiect Officer: W. Maslen Objectives: 1. Determine the significance of predation in Columbia River reservoirs through implementation of indexing of predator abundance and integration with consumption indices. 2. Implement squawfish management throughout the Lower Columbia and Snake Rivers. 3. Implement an evaluation of the Squawfish Management Program.	Date Initiated: April 1990 Results/Conclusions: Squawfish abundance was indexed in the Lower Columbia River (Bonneville to Ice Harbor) in 1990, Lower Snake River (Ice Harbor to Hells Canyon) in 1991, and in the lower river below Bonneville Dam in 1992. The significance of predation is of a similar order of magnitude in each federal reservoir when compared to John Day. Catch over 200,000 squawfish were caught throughout the federal hydrosystem in 1991.	FY 1993 and beyond: Continue implementation and evaluation of squawfish management throughout the Lower Columbia and Snake Rivers.
90-78	System-Wide Significance of Predation on Juvenile Salmonids in Columbia and Snake River Reservoir - USFWS Proiect Officer: W. Maslen Objectives: 1. Index predator consumption rates of juvenile salmonids in reservoirs of the Lower Columbia and Snake River Basin. 2. Assist ODFW (Project 90-77) to index predator abundance,	Date Initiated: March 1990 Results/Conclusions: Squawfish consumption was indexed in the Lower Columbia River (Bonneville to Ice Harbor) in 1990, Lower Snake River (Ice Harbor to Hells Canyon) in 1991, and in the lower river below Bonneville Dam in 1992.	FY 1992: Continue integration of consumption indices with abundance indices to determine the significance of predation in the Lower Columbia and Snake Rivers relative to John Day reservoir. Continue to assist ODFW in the impiementation and evaluation of the squawfish management program.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
90-78 cont.	integrate predator abundance and consumption indices to estimate system-wide losses of juvenile salmonids to predators. Continue to provide support to implement, manage, and evaluate squawfish management program.	indices.	
91-17	Investigation of Factors Affecting Migrations of Juvenile Spring Chinook above and through Lower Granite Reservoir Project Officer: P. Poe Objectives: Investigate factors affecting the migration and survival of juvenile wild/ natural and hatchery produced spring chinook above and through Lower Granite Reservoir.	Date Initiated: February 1991 Results/Conclusions: Project structure and organization established. Research plan being developed.	FY 1992: Establish Project Coordinator. Develop research plan.

III. NEW PROJECTS

None.

2. FISH DISEASE

I. COMPLETED PROJECTS

None.

II. FY 1992 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
88-152	Infectious Hematopoietic Necrosis (IHN) Virus Research – OSU **Project Officer**: R. Morinaka Objectives: 1. To investigate and determine the pathogenicity of IHN virus strains in the Columbia River. 2. To determine the mechanism of the location of IHN virus throughout the life cycle of rainbow trout and kokanee salmon.	**Date Initiated**: May 1989 **Results/Conclusions**: None at this time.	1. Year 3: Compare pathogenicity of 10 strains of IHN virus. Continue to isolate reservoirs of the virus. 2. Year 4: Test sediment and non-salmonid fish for sources of horizontal transmission.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
89-31	Control of Bacterial Kidney Disease (BKD) via Segregation of Adult Spring Chinook and Summer Chinook Salmon with Enzyme-Linked Immunosorbent Assay (ELISA) - OSU Project Officer: R. Morinaka Objectives: 1. Standardize reagents: a) antigen b) monoclonal antibodies 2. Sample experimental fish and quantify BKD levels in experimental and production samples. 3. Determine whether progeny's BKD levels are influenced by the parental BKD level.	Date Initiated: December 1988 Results/Conclusions: None at this time.	Year 3,4: Assay juvenile and adult salmon for levels of BKD. Segregate the gametes based upon BKD level. Determine quantitatively the levels of BKD relative to progeny levels.
89-32	Registration of Erythromycin - UI Project Officer: R. Morinaka Objectives: 1. Analyze existing data on erythromycin. 2. Develop additional analytical data required by the Food and Drug Administration (FDA) for drug registration.	Date Initiated: March 1989 Results/Conclusions: Pharmokinetics have been described in detail in adult spring chinook salmon.	1. FY 1992: Complete field trials and determine environmental fate. Develop protocol for intraperitoneal injections in adult salmon: complete first dose titration trial in adult and juvenile salmon. 2. FY 1993: Submit registration package to FDA.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
89-32 (cont.)	3. Work with appropriate sponsor for erythromycin registration. 4. Conduct field studies to develop data to support the registration application. 5. Determine levels and dosage for oral and injectable forms of erythromycin. 6. Determine tissue residues. 7. Complete registration package for FDA.		
89-54	Research to Identify Effective Anti-Fungal Agents - USFWS Project Officer: R. Austin Objectives: 1. Identify and test alternate anti-fungal agents that can safely replace malachite green for the control and treatment of fungal infections on eggs, juveniles, and adult spring chinook. 2. Evaluate test results and rank order tested agents, based on safety and effectiveness on spring chinook eggs and adults. 3. Recommend alternative anti-fungal agent for U.S. Food and Drug Administration registration for use on food fish and eggs.	Date Initiated: September 1989 Results/Conclusions: 1. List of ten alternative anti-fungal agents selected for testing on salmonid eggs. Selection criteria based upon fungicidal activity of agents from in-vitro test results. 2. Testing initiated on salmonid eggs. 3. Testing of alternative anti-fungal agents initiated on eggs, juveniles, and adult spring chinook salmon. 4. Although some initially selected antifungal agents have been discontinued from further testing due to their failure to pass mammalian toxicity tests, researchers are currently testing several promising compounds that have shown good results in toxicity and treatment efficacy tests. 5. Results to date are available in the 1990 project Annual Report.	1. FY 1992: Continue testing anti-fungal agents on eggs, juveniles and on adult spring chinook; evaluate safety of alternative agents tested. 2. FY 1992: Evaluate test results and recommend alternative anti-fungal agent having best potential for U.S. Food and Drug Administration registration. 3. FY 1993: Begin FDA registration work on selected alternative anti-fungal agents, upon approval of project plans.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
89-81-2	Erythrocytic Inclusion Body Syndrome (EIBS) Research – OSU Proiect Officer: R. Morinaka Obiectives: 1. Determine epizootiology of EIBS virus including susceptibility and modes of transmission. 2. Assess relationship between EIBS and other fish pathogens relative to immunosuppression. 3. Develop more accurate and efficient methods to detect the early stages of the syndrome.	Date Initiated: September 1989 Results/Conclusions: An adequate Hybrid has not been developed to culture the virus.	1. 1992: Determine effect of water temperature on transmission. 2. Continue cell culture development.
91-22	Hatchery Sorting for Bacterial Kidney Disease (BKD) Proiect Officer: R. Westerhof Obiectives: 1. Transfer the present BKD detection technology in the hatchery system. 2. Demonstrate that segregation of progeny by BKD infection levels will increase the quality of the smolts being released and positively affect adult returns. 3. Analyze the data generated by this research to evaluate the impact of BKD on hatchery-reared spring chinook salmon and assess the benefits of a segregation program.	Date Initiated: FY 1991 Results/Conclusions: Training is complete and most equipment has been received and put in use. Participating agencies are USFWS, IDFG, ODFW, WDF. Hatcheries have been selected.	1. Select hatcheries. 2. Training. 3. Adult sampling. 4. ELISA analysis of tissue. 5. Segregation of egg lots. 6. Health monitoring. 7. Evaluation of juvenile and adult mortality.

III. NEW PROJECTS

None.

I. COMPLETED PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS
88-160-3	Migratory Characteristics of Spring Chinook Salmon in the Willamette River – OSU Proiect Officer: R. Westerhof Obiectives: 1. Assess the effects of differing oxygen, density, and rearing conditions at Willamette Hatchery. 2. Track migration of adults.	Expected Completion Date: August 1992 Results/Conclusions: Results will be in final report. This project was originated under Project 88-160 but was contracted for seperately in 1991 for administrative reasons. Completion of the project is August 31, 1992.

II. FY 1992 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
88-160	Bioengineering Evaluation of Retrofitted Supplemental Oxygen for Rearing Spring Chinook – ODFW Proiect Officer: R. Westerhof Obiectives: 1. Rear spring chinook under experimental conditions; tag fish; monitor fish health/quality. 2. Recover and decode tags for returning adults.	Date Initiated: September 1988 Results/Conclusions: None at this time.	1. 1994: Begin recovering and decoding tags from returning adults. 2. June 2000: Complete data analysis. Complete final report.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
88-160 (cont.)	3. Analyze and summarize all data. 4. Transfer technology to user groups. 5. Write final report.		
88-163	Effects of Coded-Wire Tagging on the Survival of Spring Chinook Salmon - WDF Project Officer: R. Westerhof Objectives: 1. Mark entire production of each of three hatcheries with otolith marks and mark a portion of the production with coded-wire tags. 2. Repeat procedure for three brood-years at each facility. 3. Determine difference in survival rates between coded-wire tagged and untagged groups.	Date Initiated: January 1, 1989 Results/Conclusions: Third brood year fish were otolith marked in winter 1991-92. Coded-wire tagging of second year fish completed.	1. October 1991: Begin otolith marking of third brood year fish. 2. September 1993: Begin sampling otoliths from adults. 3. June 30, 1997: End of project; final report completed.
89-30	Evaluation of Pre-Release Temperature Acclimation at "Ground Water" Hatcheries - WDF Project Officer: R. Westerhof Objectives: 1. To provide Klickitat River acclimation water to the Klickitat Hatchery site.	Date Initiated: July 1989 Results/Conclusions: Construction for delivery of water to rearing area complete.	1. July 1, 1989 - Dec. 30, 1990: Feasibility and engineering studies and construction to provide river water to the hatchery site. 2. September 1990: Start coded-wire tag fish for 4 years. 3. August 1992: Start sampling coded-wire tags for 5 years.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
89-30 (cont.)	2. Compare the performance (survival of adults to hatchery rack) of spring chinook smolts raised in and released directly from a groundwater supplied hatchery to smolts released from the same hatchery following acclimation with the ambient tributary receiving water for a period of time before release.		4. June 30, 1998: Final report and project completion.
89-46	Spring Chinook Smolt Quality Assessment - NMFS Project Officer: R. Austin Objectives: 1. Select and monitor fish quality at five hatcheries. 2. Correlate these data with overall survival of the released groups (total contribution). 3. Determine suitability of smolt quality indices and other physiological parameters for assessing fish quality and improving hatchery effectiveness.	Date Initiated: February 1989 Results/Conclusions: 1. Sampling during the first two years at four hatcheries indicated that most fish were released prior to the initiation of the smoltification process. 2. Significant differences were noted in upriver vs. downstream hatchery releases in degree of smoltification. 3. Sampling is continuing. 4. Developed plan for monitoring physiological parameters of wild smolts. 5. Results to date are summarized in the 1989 Annual Report.	1. FY 1992: Continue to characterize and monitor physiological parameters for hatchery spring chinook at five hatcheries. Continue to relate physiological parameters measured with hatchery rearing practices. 2. FY 1992: Complete monitoring of smolt quality parameters. 3. FY 1993-1996: Recovery of adult returns. 4. FY 1996: Recovery of adult fish complete; final report written.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
89-81-3	Modeling Optimized Hatchery Production - OSU Project Officer: R. Austin Objectives: 1. Develop a computerized model for defining and solving the problems of optimizing hatchery production of anadromous salmonids. 2. Test the model by applying to actual hatchery situations. 3. Calibrate and apply the model to specific hatcheries. 4. Use model as a tool towards optimizing the hatchery production system and to identify areas where further research is necessary.	Date Initiated: September 1989 Results/Conclusions: 1. Contacts established with fisheries agencies and Tribes to form a project task force of hatchery biologists to assist in the development and testing of the hatchery model. 2. Prototype model developed and testing of model initiated at selected hatcheries.	1. 1992: Continue model development; prototype model available for testing and refinement. 2. October 1992: Model fully developed, tested and refined; final product will include full documentation of software. Workshop training session for potential users of hatchery model will be scheduled by contractor.

III. NEW PROJECTS

None.

4. SUPPLEMENTATION

I. COMPLETED PROJECTS

None.

II. FY 1992 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
89-96	A Genetic Monitoring and Evaluation Program for Supplemental Populations of Salmon and Steelhead in the Upper Columbia River Basin – NMFS Project Officer: T. Vogel Objectives: 1. Evaluate the nature and extent of genetic changes in hatchery stocks to be used for supplementation. 2. Quantify the genetic impact of supplementation on targeted natural stocks and non-targeted wild stocks.	Date Initiated: September 1989 Results/Conclusions: 1. Tentative conclusion that Snake River spring and summer chinook salmon may have somewhat lower levels of genetic variability than are found in Lower Columbia River stocks, but the difference may not be as large as suggested by earlier studies. 2. There is genetic evidence for restricted gene flow between streams in the same drainage. See Annual Report August 1991.	September 1992: Evaluate Project and determine desirability to continue.
89-97	Evaluation of the Success of Supplementing Imnaha River Summer Steelhead with Hatchery-Reared Smolts and Assessment of the Effect on Natural Production Performance, Life History Characteristics, and Genetic Characteristics – ODFW	Date Initiated: September 1989 Results/Conclusions: None at this time	1. June 1992: Review experimental design and management agreements. 2. October 1992: Start Phase II, Experimentation.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
89-97 cont.	Project Officer: T. Vogel Objectives: 1. Determine the effects on naturally produced fish due to predation by hatchery fish and competition for food and space between naturally produced fish and hatchery fish. 2. Determine the effects on indigenous stock productivity that result from hatchery adults interbreeding with indigenous wild fish. 3. Determine the effects of supplementation with hatchery fish of indigenous stock.		
89-98	Determination of Effectiveness of Supplementation Strategies and Assessment of Interaction between Supplemental Hatchery Chinook Salmon on Natural Populations in the Salmon, Snake, and Clearwater Rivers in Idaho - IDFG Project Officer: T. Vogel Objectives: 1. Determine the effects of outplanting different life stages of spring and summer chinook on natural fish production.	Date Initiated: September 1989 Results/Conclusions: See Experimental Design Report, December 1991.	1. January 1992: Review experimental design and management agreements. 2. March 1992: Start Phase II, Experimentation.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
89-98 cont.	2. Determine effectiveness of supplementation in building self-sustaining natural runs of the species. 3. Develop guidelines for future supplementation in terms of size and time of release.		
90-52	Performance/Stock Productivity Impacts of Hatchery Supplementation - USFWS Proiect Officer: T. Vogel Objectives: Develop generically applicable model using appropriate fish stock.	Date Initiated: FY 1991 Results/Conclusions: None at this time.	FY 1992: Select study streams and begin experimentation.
90-53	Southeast Washington Species Interaction Study - WDW Proiect Officer: T. Vogel Dbiectives: 1. Determine inter-specific and intra-specific competition and predation among spring chinook, summer steelhead, and resident trout. 2. Determine magnitude and impact of residualization on wild stocks and supplementation programs.	Date Initiated: FY 1991 Results/Conclusions: None at this time.	FY 1992: Projecct continuation. FY 1993: Project complete.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
90-55	**Effectiveness of Supplementation Strategies and Assessment of Interactions Between Wild/Natural and Hatchery Stocks of Summer Steelhead in Idaho - IDFG** Project Officer: **T. Vogel** Objectives: **Evaluate existing Supplementation programs for stock performance** characteristics.	**Date Initiated: FY 1991** **Results/Conclusions: None at this time.**	**FY 1992: Experimental Design complete.**

III. NEW PROJECTS

None.

6.3 DATA COLLECTION FOR HATCHERY DATA BASE
(Fund in Response to System Monitoring and Evaluation Work Group Proposals>

206(e)(1) Hatchery Data Base. BPA shall fund collection of Columbia River Basin hatchery data for anadromous fish. Data to be collected, format, and schedules shall be determined by the work group on improving hatchery production (described above>, working in conjunction with the work group on system monitoring and evaluation (described above>. These data shall include, at a minimum: numbers of returning adults; disposition of returning adults; source and description of brood stock; actions taken to maintain genetic diversity; and size, location, and time of release of juvenile fish. Data collected shall be stored in the Council's anadromous fish data base.

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To develop and implement the Hatchery Data Base.

Background and Progress to Date:

The scoping of the CIS in FY 1990 and 91 (Project 88-108-1) will provide overall guidance for development of the Hatchery Data Base, as well as the Natural Production Data Base.

Plans:

The Hatchery Data Base was designed as part of the CIS project in 1990 (Project 88-108-1).

Projects:

See Project 88-108-1 under Action Item 6.10.

6.4 DATA COLLECTION FOR NATURAL PRODUCTION DATA BASE
(Fund in Response to System Monitoring and Evaluation Work Group Proposals)

206(e)(2) **Natural Production Data Base. BPA shall fund collection of information on the natural production of anadromous fish in the Columbia River Basin. Data to be collected shall include, at a minimum: adult escapement, redd counts, and juvenile migration for key index streams in the Columbia River Basin. The key index streams shall be consistent with any key index streams identified through the U.S./Canada Pacific Salmon Treaty and other planning processes. Data collected shall be stored in the Council's anadromous fish data base.**

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To develop and implement the Natural Production Data Base.

Background and Progress to Date:

The scoping of the CIS in FY 1989 (Project 88-108-l) provided overall guidance for development of the Natural Production Data Base, as well as the Hatchery Production Data Base. IDFG has the lead in coordination and development of the Natural Production Data Base Technical Work Statement by the Council's MEG. No work on development planned during FY 1990-91. CIS will be designing the data base during FYs 1991 and 1992.

Plans:

Following approval of the Work Statement by the MEG and CBFWA, BPA may be asked to fund a Natural Production Data Base project in FY 1992.

Projects:

See Project 88-108-l under Action Item 6.10.

6.5 HIGH PRIORITY PROJECTS IN AREAS OF EMPHASIS (Fund Only These in FY 1987)

206(b) **[Abstract] This measure directs BPA to focus its funding of salmon and steelhead research in the next five years in the four areas of emphasis.**

ACTION ITEM **ACTIVITY SUMMARY:**

Objectives:

To fund only high priority projects in the areas of emphasis during FY 1987.

Background and Progress to Date:

One project, a demonstration of a system for removing malachite green from hatchery effluent (Project 87-421), was identified by the agencies and Tribes as sufficiently important to merit priority funding in FY 1987. The FDTWG strongly supported this project and requested that it be funded immediately. BPA initiated Project 87-421 in FY 1987; the project was completed in FY 1989.

Plans:

Action Item 6.5 has been completed.

Projects:

None.

6.10 SYSTEM MONITORING AND EVALUATION (Coordinated Information System)

206(d)(2)(c) **[Abstract] The Council's system monitoring and evaluation program will include development of a coordinated information system designed to facilitate effective exchange and dissemination of fisheries data.**

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To fund development and operation of SMEP.

Background and Progress to Date:

In FY 1988, BPA began funding Project 88-108-1 to develop the CIS to **contribute to the SMEP. Projects 88-108-2 and 89-104 began in FY 1989. Project 88-100-2 was completed in 1991. CIS Phase** II **is nearly complete. Products include:**

- **Report on Information Needs.**
- **Data Catalog.**
- **Technical and Administrative Options.**
- **Library Resource Option.**
- **Draft Project Summary (Phase** II**).**
- **Draft Project Plan (Phase** III **and beyond).**
- **Draft Work Plan and Budget.**
- **Draft Stock Summary Reports for Oregon and Washington (Idaho due in September 1992).**

Plans:

BPA is currently reviewing the proposed plan for CIS **and considering how to implement** CIS.

I. COMPLETED PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS
88-108-2	EPA/USGS Mapping System for Northwest Environmental Data-base (NED) and Coordinated Information System (CIS) - USGS Proiect Officer: T. Pansky Objectives: 1. Complete regional digital hydrographic data base at 1:100,000 scale for use in NED and CIS. 2. Enhance current EPA/USGS mapping system.	Date Completed: December 1991 Results/Conclusions: Basic system is complete for states of Washington, Oregon, Idaho, and western Montana.

II. FY 1992 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
89-104	Historical Data Base - USFS/PNWRS Proiect Manaoer: T. Clune Objectives: Archive summaries and raw data from original Bureau of Fisheries habitat surveys of the Columbia River and tributaries. Publish summaries in book form by sub-basin	Date Initiated: FY 1989 Results/Conclusions: None at this time.	1. FY 1990 to FY 1993: Produce a data base management system for historical stream inventories which is integrated with CIS protocols for sub-basin stream inventory data. Edit and produce Columbia Basin stream inventory for areas above and below Bonneville Dam. 2. FY 1993: Project scheduled for completion.

III. NEW PROJECTS

None.

COORDINATION ACTION ITEMS

6.12 CONTINUING COORDINATION AND CONSULTATION
(By All Federal Project Operators/Regulators)

1203(c) **[Abstract] The Federal project operators and regulators shall work with the agencies and Tribes to comply with the consultation/coordination requirements of the Act. The Council expects research planning consultation to occur among agencies, Tribes, and project operators and regulators. The Council will encourage improved coordination of fish and wildlife efforts by consulting with the fish and wildlife agencies, Tribes, project operators and regulators, BPA customers, Federal and state water and land management agencies, irrigation districts, academic experts, and interested citizens groups.**

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To provide for the involvement of the region's fish and wildlife agencies and Tribes at relevant decision-making points while BPA plans its implementation of the Program and to improve coordination and consistency between BPA's implementation actions and the agencies' and Tribes' existing and future management activities.

Background and Progress to Date:

In early April 1987, BPA staff began meeting with Council staff and an ad-hoc committee of CBFWA. The meetings focused on explaining BPA's process for implementing the Program, from project inception through completion. Participants agreed to continue discussion, with a goal of developing a collaborative and cooperative process through which BPA would plan and implement the Program. As a result of these discussions, an Implementation Planning Process (IPP) was developed jointly by CBFWA and BPA (see Section III of the AIWP).

The IPP was endorsed by the BPA Administrator and the CBFWA Chair on October 19, 1988. The IPP's Policy Review Group (PRG) was formed in late 1988. In January 1989, the PRG began providing BPA with policy and funding recommendations related to Program implementation. The PRG continues to serve as a forum for policy coordination and consultation among BPA, fish and wildlife agencies, Tribes, utility interests, Council, and other interested parties. The AIWP is based on the outline developed by the PRG during Step 1 of the annual IPP cycle.

Plans:

BPA plans to continue to use the IPP as a coordination and consultation mechanism and to develop the AIWP.

RESIDENT FISH ACTION ITEMS AND TECHNICAL SUBJECTS

7.1 COLVILLE HATCHERY
(Complete Construction: March 1989)
(Fund Operation and Maintenance>

903(g)(1)(A) [Abstract] Design, construction, operation and maintenance of a resident trout hatchery on the Colville Indian Reservation. The Council expects that state-of-the-art technologies will be used in the design of the hatchery.

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To design and construct a resident trout hatchery on the Colville Indian Reservation to mitigate partially for anadromous fish losses from hydroelectric development and operation.

Background and Progress to Date:

The primary purpose of the hatchery is to produce trout to stock lakes and streams on the Reservation. The Colville Confederated Tribes (CCT) constructed the hatchery through subcontracts. The final design for the hatchery was completed in October 1987. Construction began in July 1988 and was completed in fall 1989. Operations began in October 1989. The hatchery met its production and release goals for year one (FY 1990) and year two (FY 1991) operations.

Plans:

BPA will continue to fund the operation and maintenance of the facility by the CCT. Year three (FY 1992) operations are funded and underway. In 1992, BPA and CCT will evaluate need to add incubation and chiller capacity to counteract warmer than expected water temperatures. Plans for additional raceways and a fish hauling truck will also be reviewed.

I. COMPLETED PROJECTS

None.

II. FY 1992 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
85-38	Colville Hatchery – CCT Project Officer: J. Marcotte Objectives: Design and construct a resident trout hatchery on the Colville Indian Reservation.	Date initiated: 1985 Results/Conclusions: Design completed in FY 1987. Construction contract initiated July 1988. Completed construction of 50,000 pound trout hatchery in September 1989.	Continuing: Started operation and maintenance in October 1989. O&M to continue.

III. NEW PROJECTS

None.

7.2 COEUR D'ALENE RESERVATION ACTIONS

(Fund Stream Survey; Design, Construction, Operation, and Maintenance of Cutthroat/Bull Trout Hatchery; Habitat Improvement Projects; 3-Year Monitoring Program)

903(g)(1)(B) **[Abstract] BPA shall fund a baseline stream survey of tributaries located on the Coeur d'Alene Indian Reservation to compile information on improving spawning habitat, rearing habitat, and access to spawning tributaries for cutthroat and bull trout, and to evaluate the existing fisheries. If justified by the results of the survey, fund the design, construction, and operation of a cutthroat and bull trout hatchery on the Coeur d'Alene Reservation; necessary habitat improvement projects; and a three-year monitoring program to evaluate the effectiveness of the hatchery and habitat improvement projects. If the baseline survey indicates a better alternative than construction of a fish hatchery, the Coeur d'Alene Tribe will submit an alternative plan for consideration in program amendment proceedings.**

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

Survey the streams on the Coeur d'Alene Indian Reservation for status of stocks and the possibility of improving habitat. If feasible, construct habitat improvement projects. Determine need for stock supplementation and, if needed, fund design, construction, and operation of a cutthroat and bull trout hatchery.

Background and Progress to Date:

Ranking criteria were developed to rate 19 tributaries on the Coeur d'Alene Indian Reservation for potential habitat enhancement for westslope cutthroat trout and bull trout. Cutthroat and bull trout habitat requirements, derived from an extensive literature review of each species, were compared to the physical and biological parameters of each stream observed during an aerial (helicopter> survey. Ten tributaries were selected for futher study, using the ranking criteria that were derived. Streams located completely on the reservation showed the highest potential for enhancement, had no barriers to fish migration, had good road access, and had a gradient acceptable to cutthroat and bull trout. The ten streams selected for further study were Bellgrove, Fighting, Lake, Squaw, Plummer, Little Plummer, Benewah, Alder, Hell's Gulch, and Evans creeks.

Plans:

BPA plans to fund this Action Item, beginning in FY 1990 with a project to conduct the stream surveys.

I. COMPLETED PROJECTS

None.

II. FY 1992 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
90-44	Stream Survey, Hatchery, Improvements, and Monitoring on the Coeur D'Alene Reservation Project Officer: R. Austin Objectives: 1. Survey streams and determine stock status. 2. Assess possibilities for habitat improvement. 3. Construct hatchery, if needed. 4. Monitor results of habitat improvement projects and hatchery supplementation.	Date Initiated: September 1990 Results/Conclusions: 1. Initial stream survey by aircraft completed in December 1990 using BPA helicopter and pilot. 2. Criteria for ranking tributaries for more intensive on-the-ground stream surveys were selected. 3. Ten streams were selected for further study using the ranking criteria that were developed.	1. FY 1991: Begin sampling selected tributaries for fish population and habitat baseline data. 2. FY 1992: Continue sampling of tributaries for biological and physical data. Analyze all data and assess potential carrying capacities of streams for bull and cutthroat trout. Recommend alternative strategies for enhancing fisheries in final project report due in September 1992.

III. NEW PROJECTS

None.

7.3 KOKANEE SALMON HATCHERIES
(Fund Design, Construction, Operation, Maintenance of Hatcheries at Galbraith Springs and Sherman Creek: Begin FY 1988.)
(Fund Monitoring Programs>

903(g)(1)(C) [Abstract] BPA shall fund design, construction, operation, and maintenance of two kokanee salmon hatcheries, one at Galbraith Springs and one at Sherman Creek. The Sherman Creek hatchery will be used as an imprinting site and egg collection facility to provide a source of kokanee fry for: i) stocking into Banks Lake and ii) transferring to Galbraith Springs hatchery for rearing to fingerling size before planting into Lake Roosevelt. Decisions on hatchery production, stocking, and outplanting locations will be coordinated by a three-member committee consisting of one representative each appointed by the Colville Confederated Tribes, Spokane Tribe, and the Washington Department of Wildlife.

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To fund the design, construction, operation, and maintenance of two kokanee salmon hatcheries.

Background and Progress to Date:

Preliminary design began in FY 1988. Construction completed in FY 1992.

Plans:

Fund O&M.

I. COMPLETED PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS
88-62	Spokane Tribal Fish Hatchery - Galbraith Springs Project Officer: S. Levy Objectives: Design, construct, and operate kokanee hatcheries.	Date Completed: FY 1991 Results/Conclusions: None.

II. FY 1992 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
91-46	Spokane Tribal Hatchery O&M - Spokane Tribe Project Officer: S. Levy Objectives: Operate and maintain kokanee hatchery to provide a recreational fishery in Lake Roosevelt and Banks Lake. In conjunction with the Sherman Creek Hatchery.	Date Initiated: January 1991 Results/Conclusions: Start-up of hatchery operations has been successfully begun.	FY 1991: Begin O&M.
91-47	Sherman Creek Hatchery O&M - WDW Project Officer: S. Levy Objectives: Operate and maintain facility to provide kokanee for Lake Roosevelt and Banks Lake.	Date Initiated: June 1991 Results/Conclusions: None at this time.	FY 1992 and beyond: Continue funding O&M.

III. NEW PROJECTS

None.

7.4 HABITAT AND PASSAGE IMPROVEMENTS ON LAKE ROOSEVELT TRIBUTARY STREAMS
(Fund Design, Construction, Operation, Maintenance of Projects: Begin FY 1989)
(Fund Monitoring Programs>.

903(g)(1)(D) [Abstract] BPA shall fund capital, operation, and maintenance of pilot projects for improving habitat and passage into and out of Lake Roosevelt tributary streams for rainbow trout. The aim of this measure is to emphasize natural production by: i) facilitating passage of migratory rainbow trout between Lake Roosevelt and its tributary streams and ii) improving fry and fingerling rearing habitat in these streams.

903(g)(1)(E) [Abstract] Monitoring to evaluate the effectiveness of the above measures.

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To improve stream habitat and passage into and out of Lake Roosevelt tributary streams for rainbow trout. Determine status of fish stocks in Lake Roosevelt before habitat improvements and hatchery construction. Evaluate the contribution of the hatcheries and habitat improvement projects of stocks in Lake Roosevelt.

Background and Progress to Date:

BPA funded a stock assessment study in FY 1988. Monitoring program started in summer of 1988.

Plans:

BPA will continue to fund habitat improvement projects in FY 1993. Annual reports on monitoring are available.

I. COMPLETED PROJECTS

None.

II. FY 1992 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
88-63	Lake Roosevelt Monitoring Program – Spokane Tribe Project Officer: F. Holm Objectives: 1. Determine status of fish stocks in Lake Roosevelt before construction of habitat improvement projects and hatcheries. 2. Evaluate contribution of these projects and hatcheries to Lake Roosevelt. 3. Determine the losses of Kokanee and rainbow caused by entrainment at Grand Coulee Dam.	Date Initiated: July 1988 Results/Conclusions: Available in annual reports.	1. Continuing: Assess status of stocks in Lake Roosevelt and measure the success of habitat improvement projects and hatcheries. 2. FY 1995: Project scheduled for completion.
90-18	Lake Roosevelt Habitat Improvement Projects – CCT Project Officer: S. Levy Objectives: Facilitate passage of resident fish in Lake Roosevelt tributaries and improve rearing habitat.	Date Initiated: April 1990 Results/Conclusions: None at this time.	FY 1992 and 1993: Implement improvements from work plan developed in FY 1991.

III. NEW PROJECTS

None.

7.5 KOOTENAI INDIAN RESERVATION STURGEON HATCHERY
(Fund Design, Construction, Operation, Maintenance of Hatchery: Begin FY 1988)
(Fund Evaluation Study)

903(g)(1)(H) [Abstract] **BPA shall fund design, construction, operation and maintenance of a low-capital sturgeon hatchery on the Kootenai Indian Reservation. BPA and the Kootenai Tribe also shall explore alternative ways to make effective use of the hatchery facility year-round.**

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To design, construct, and operate a low-cost experimental sturgeon hatchery on the Kootenai Reservation in Idaho.

Background and Progress to Date:

Project was funded to develop a water supply, design a hatchery, and train personnel in sturgeon culture in FY 1990. Ground water was found to be unsuited for fish production – City of Bonners Ferry water mixed with Kootenai River water is being used. Hatchery, completed in spring of 1991, is in operation and rearing sturgeon for the Kootenai River.

Plans:

BPA has funded project as stated above. Hatchery was constructed and operational in spring of 1991. The facility will continue to operate on an experimental basis.

I. COMPLETED PROJECTS

None.

II. FY 1992 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
88-64	Design, Construct, and Operate a Sturgeon Hatchery on the Kootenai Reservation, Idaho - Kootenai Tribe Project Officer: F. Holm Objectives: Same as title.	Date Initiated: September 1988 Results/Conclusions: Hatchery constructed FY 1991, and is in operation.	FY 1992: Continue hatchery operations. FY 1993: Continue operations. Stock fingerling and yearling sturgeon in selected sites on Kootenai River.

III. NEW PROJECTS

None.

7.6 **STURGEON AND WATER LEVEL FLUCTUATIONS:** IDAHO PORTION OF KOOTENAI RIVER
(Fund Study to **Assess** Impacts: **Begin FY** 1989)

903(g)(1)(I) **[Abstract] BPA shall fund a survey of the Kootenai River downstream from Bonners Ferry, Idaho, to the Canadian border to: i) evaluate the effectiveness of the hatchery and ii) assess the impact of water level fluctuations caused by Libby Dam on hatchery operation for outplanting of sturgeon in the Idaho portion of the Kootenai River.**

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To assess the status of sturgeon stocks in the Kootenai River; obtain brood fish for hatchery; assess the impact of water level fluctuations caused by Libby Dam.

Background and Progress to Date:

BPA has funded a project with IDFG to begin looking for broodstock and train hatchery personnel. Project began in late FY 1988. Sturgeon have been caught and tagged and are being monitored. Broodstock were spawned in spring of 1991 - 1992 and experimental rearing is ongoing.

Plans:

BPA will continue to fund this study in FY 1993, with emphasis directed toward obtaining brood fish for the hatchery and rearing sturgeon for stocking in Kootenai River. Stocked sturgeon will be tagged and their movements monitored.

I. COMPLETED PROJECTS

None.

II. FY 1992 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
88-65	Assess Impacts of Water Level Fluctuations on Sturgeon in the Kootenai River – IDFG Project Officer: F. Holm Objectives: Assess status of sturgeon stocks in the Kootenai River and effects of water fluctuations on these stocks. Obtain brood fish for hatchery.	Date Initiated: September 1988 Results/Conclusions: BPA contracted with IDFG to conduct this study beginning in 1988. Sturgeon are being caught, tagged and monitored. Broodstock for experimental rearing were obtained for 1991 and 1992.	Continuing: Status of sturgeon populations and availability of brood stock will be determined. Eggs will be taken for experimental rearing under Project 88-64. Sturgeon stocked from 1991 and 1992 brood will be tagged and their movement monitored.

II. NEW PROJECTS

None.

7.7 PEND OREILLE RIVER FISHERY IMPROVEMENTS ON KALISPEL RESERVATION
(After Council Consultation, Fund Assessment of Improvement Opportunities: Begin FY 1988)

903(g)(1)(G) [Abstract] BPA shall fund an assessment of fishery improvement opportunities in the Pend Oreille River within the boundaries of the Kalispel Indian Reservation. This survey will provide: i) baseline information about existing fish populations and habitat and ii) information on possible means of improving fisheries. Upon completion of the assessments, recommendations for fisheries projects will be submitted to the Council.

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To survey the fish populations in the Pend Oreille River within the boundaries of the Kalispel Reservation. Develop recommendations to improve the fisheries.

Background/Progress to Date:

Project began in February 1988. Baseline data of fish stocks and angler use are in annual reports printed in 1989 and 1990. Project was completed in June 1991.

Plans:

Program Measure has been completed.

Projects:

None.

7.10 FUND PROJECTS AS PROVIDED IN SECTION 903(g)(2) AND ACTION ITEM 7.8.

903(g)(2) **[Abstract] The appropriate party or parties shall fund resident fish substitution actions in the blocked area above Hells Canyon Dam to partially mitigate for salmon and steelhead losses incurred as a result of the construction and operation of Federal and non-Federal hydropower projects in the blocked area.**

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

Develop funding mechanisms and scheduling for resident fish substitution projects above Hells Canyon Dam.

Backaround and Progress to Date:

BPA has agreed to fund a portion of the Duck Valley measure. Trout were purchased from private growers and stocked in FY 1988 through FY 1992. BPA funded a study to develop alternative means to annual fish stocking to enhance the fisheries of the Reservation and the development of a fisheries management plan.

Plans:

Trout will be purchased and stocked on the Duck Valley Reservation in FY 1993.

BPA assisted in a feasibility study for resident fish artificial production above Hells Canyon Dam in FY 1991-1992. Funding of this feasibility study does not represent agreement by BPA to fund additional resident fish substitution projects above Hells Canyon Dam prior to the determination of the appropriate funding entity, or entities, by the Council.

I. COMPLETED PROJECTS

None.

II. FY 1992 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
88-156	Duck Valley Resident Fish Project - SPT Project Officer: F. Holm Objective: Purchase rainbow trout to stock waters on Duck Valley Reservation and implement a management plan for reservation waters.	Date Initiated: FY 1988 Results/Conclusions: The project funded the purchase of fingerling and catchable rainbow trout for stocking in waters on on the Duck Valley Reservation and the development of a fisheries management plan.	FY 1992: The fisheries management plan was implemented and trout were purchased. FY 1993: Eagle Lake rainbow will be reared by the USFWS for stocking in the reservoirs. Additional trout will be purchased from CSI and private growers. Mountain View Reservoir will be lowered to remove scrap fish.
91-27	Feasibility Study - Hatchery Production Above Hells Canyon Project Officer: F. Holm Objectives: Determine the costs, feasibility, and advantages of expanding capacity (construction of new raceways, collection of additional water from wells or springs, installation of oxygen injection, or additional staffing) at Ashton, Cabinet Gorge, Hayspur, Mackay, or Nampa hatcheries to meet fish	Date Initiated: FY 1991 Results/Conclusions: None at this time	FY 1992: Study will be completed in August. FY 1993: Project completed. Results presented to the Council for their consideration.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
91-27 cont.	culture needs identified in Program Section 903(g)(2) versus construction of an appropriate incubation and early rearing facility combined with lesser expansion at one of the above hatcheries or a USFWS hatchery.		
92-10	Fort Hall Bottoms Habitat Enhancement - Shoshone-Bannock Tribes Project Officer: F. Holm Objectives: Improve habitat for cutthroat and rainbow trout in Clear Creek and Spring Creek along the Fort Hall Bottoms on the Fort Hall Reservation.	Expected Start Date: FY 1992 Results/Conclusions: None at this time.	FY 1992: Begin improvement work in FY 92 as the soon as a feasibility report by the Shoshone-Bannock Tribes is completed and approved. FY 1993: Continue habitat improvement projects.

III. NEW PROJECTS

None.

7.11 ONGOING STUDIES IN-MONTANA
(Mitigate for Resident Fish Losses)

903(h)(1) **Hungry Horse Dam Resident Fish Mitigation.**

[Abstract] **Resident fish losses estimates identified in the Fisheries Mitigation Plan for Losses Attributable to the Construction and Operation of Hungry Horse Dam prepared by Montana Department of Fish, Wildlife and Parks and the Confederated Salish and Kootenai Tribes are incorporated into the program. BPA is directed to fund a program to mitigate for these losses.**

ACTION ITEM ACTIVITY SUMMARY

Objectives:

Begin implementation by developing a plan to address baseline data collection, fish passage over man-caused barriers, initiation of Kokanee supplementation, off-site mitigation and on-site habitat improvements.

Background and Progress to Date:

The plan was developed in FY 1992 and presented to the Council. Hatchery supplementation activities were started in FY 1992.

Plans:

Continue hatchery supplementation of kokanee. Begin habitat improvement projects and monitoring and evaluation.

Projects:

Kokanee supplementation and hatchery improvement project is in place, with USFWS. Monitoring and evaluation and habitat improvement projects are in place with MDFWP.

I. COMPLETED PROJECTS

None.

II. FY 1992 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
91-19	Hungry Horse Mitigation Fish Culture/Biologist - USFWS Project Officer: F. Holm Objectives: 1. Oversee planning for mitigation needs at Creston NFH. 2. Coordinate egg procurement, fish production and outplanting of fish produced at Creston NFH. 3. Initiate, develop and coordinate an experimental bull trout culture program. 4. Coordinate development and construction of the Rose Creek Isolation Facility.	Expected Start Date: April 1992 Results/Conclusions: None at this time.	FY 1992: Start project.

III. NEW PROJECTS

None.

7.12 STURGEON STUDIES
(Fund Ongoing Studies)

903(e)(1) **BPA shall fund research to determine the impacts of development and operation of the hydroelectric power system on sturgeon in the Columbia River Basin. These studies may include: 1) habitat requirements; 2) maintenance of genetic integrity; 3) stock assessment; 4) potential for artificial propagation; and 5) migrating potential. Specific recommendations for the protection, mitigation, and enhancement of sturgeon may be submitted to the Council upon completion of these studies.**

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To determine the impacts on white sturgeon from the development and operation of the hydropower system. Develop recommendations for the protection, mitigation, and enhancement of white sturgeon.

Background and Progress to Date:

Impacts on white sturgeon from the development and operation of hydropower have not been determined, but there is evidence that the impacts have been substantial. From a series of workshops funded by BPA, a work plan for sturgeon research was developed, followed by a sturgeon research program implementation plan. These were submitted to the Council, as called for by Action Item 7.12. One study, a four-agency project to determine the habitat requirements and status of stocks downstream from McNary Dam, is in its sixth field season. This project will be extended into the McNary Pool in 1993.

Plans:

The genetic identification study was expanded into the Upper Columbia Basin and the Kootenai River areas and completed in FY 1991. A sturgeon hatchery was constructed on the Kootenai Indian Reservation. The habitat requirements and stock assessment study was designed as a 6-year project because of the large study area and the multiple objectives involved. However, as the project has evolved, it is apparent that it should be continued for several more years to fill in missing data gaps.

I. COMPLETED PROJECTS

None.

II. FY 1992 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
86-50	Determine the Status and Habitat Requirements of White Sturgeon Populations in the Columbia River Downstream from McNary Dam - ODFW (WDF, USFWS, and NMFS are subcontractors) Project Officer: F. Holm Objectives: Determine the status and habitat requirements of white sturgeon in the Columbia River downstream from McNary Dam. Detailed objectives and results are described in the Project's annual reports.	Date initiated: 1986 Results/Conclusions: Collection of all age groups of sturgeon has been successful, with larval sturgeon and eggs being collected in The Dalles and Bonneville Dam pools. Coordination with the work ongoing below Bonneville Dam is excellent. Annual reports for 1988-DOE/BP-63584-2, 1989-DOE/BP-63584-3, 1990-DOE/BP-63584-4. and 1991-DOE/BP-63584-5 are available.	1. 1992: Model development was continued to identify effects of hydropower on population status and habitat. 2. 1993: Project will be extended into the McNary Pool.

III. NEW PROJECTS

None.

----- PEND OREILLE HATCHERY (FORMER ACTION ITEM 41.4)

MEASURE LANGUAGE:

Not applicable. Council deleted measure in amended Program.

TECHNICAL SUBJECT ACTIVITY SUMMARY:

Objectives:

To design, construct, and evaluate the Pend Oreille (Cabinet Gorge) Hatchery. Evaluate the degree to which the Albeni Falls and Cabinet Gorge projects are responsible for the decline of the Lake Pend Oreille fishery, and the level of mitigation necessary to restore a reasonable number of fish in Lake Pend Oreille.

Background and Progress to Date:

The Pend Oreille (Cabinet Gorge) Hatchery was completed in 1985. The hatchery is designed to produce 20 million kokanee fry annually to enhance the fishing of Lake Pend Oreille, which has been adversely affected by Cabinet Gorge and Albeni Falls dams and the introduction of mysis shrimp. BPA and the Washington Water Power Company shared the costs of constructing the facility. The IDFG funds the operation and maintenance of the hatchery. Evaluation activities are continuing.

Plans:

Fund evaluation activities through completion.

I. COMPLETED PROJECTS

None.

II. FY 1992 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
85-339	Kokanee Stock Status and Contribution of Cabinet Gorge Hatchery, Lake Pend Oreille, Idaho – IDFG Project Officer: F. Holm Objectives: Determine the contribution of the Cabinet Gorge Hatchery to the kokanee fishery in Lake Pend Oreille. Detailed objectives are described in the Project's annual reports.	Date initiated: 1985 Results/Conclusions: Kokanee egg takes for the hatchery have fluctuated each year. 12 million eggs were taken in 1990. Only 5 million in 1991. Hatchery water problems are being solved; flushing flows from Cabinet Gorge Dam are required to get fingerlings down the Clark Fork River into Lake Pend Oreille. IDFG continues to work with Washington Water Power on this. The kokanee population in Pend Oreille was estimated to be 10.2 million in 1990, 6.9 million in 1991. Population continues to fluctuate, but is higher than before the hatchery began to contribute fish to the lake. Hatchery fish continue to make up about 50% of the kokanee population.	1. 1993: Water will be requested for flushing flows in July and August 1993. Zooplankton data will be analyzed and results compared to previous years' data and related changes in kokanee densities and growth rates in order to define carrying capacity better. Some plants will be made, using a U.S. Navy barge. Creel census will be used to estimate contribution of Cabinet Gorge Hatchery. 2. Project scheduled for completion in Spring of 1993.

III. NEW PROJECTS

None.

7.13 ACCUMULATED MATERIALS IN KOOTENAI RIVER
(Initiate **Removal>**

903(d)(1) **BPA shall fund the removal of materials which have accumulated in Kootenai River tributary deltas below Libby Dam as a result of the dam's construction and operation and which interfere with the migration of spawning fish.**

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

When necessary, remove materials which have accumulated in Kootenai River tributary deltas and which interfere with fish migration.

Background and Progress to Date:

Not applicable.

Plans:

None at this time.

7.14 IMPACTS OF DWORSHAK DAM
(Begin Assessment of Construction and Current Operation Impacts>

903(e)(4) BPA shall fund a study to assess the impacts of the original construction and current operation of Dworshak Dam on the resident fishery. This study will include the following research concerns of the Nez Perce Tribe: 1) population dynamics of kokanee; 2) reservoir productivity; 3) food habits of rainbow trout; 4) population dynamics and habitat preferences of small mouth bass; and, 5) the status of forage species. This study effort will be coordinated with the Corps. Recommendations detailing specific protection, mitigation and enhancement opportunities, consistent with the requirements of 804(e)(16), may be submitted to the Council.

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To assess the status of resident fish stocks, particularly kokanee; to compare data to that obtained when reservoir was first filled; to determine whether changes are caused by operation of Dworshak Dam.

Backaround and Progress to Date:

Two projects have been funded to cover the five concerns listed in the Program Measure. IDFG and the NPT are the contractors for the projects. The projects started July 1, 1987.

Plans:

The projects will run until December 31, 1991, at which time IDFG and the NPT may submit recommendations detailing specific protection, mitigation, and enhancement plans to the Council. Both IDFG and the NPT are completing the final data analysis; expected report completion date is April 1, 1992.

Data collected from these efforts will be incorporated with the Systems Operation Review conducted by BPA, USACE, and USBR.

I. COMPLETED PROJECTS

None.

II. FY 1992 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
87-99	Dworshak Dam Impacts Assessment and Fisheries Investigation – IDFG Project Officer: R. Austin Objectives: 1. Assess the status of kokanee stocks in the reservoir. 2. Document losses of kokanee fish in Dworshak Reservoir. through turbines at Dworshak Dam. 3. Assess limnological parameters and evaluate impacts of reservoir management on the zooplankton community and kokanee production.	Date initiated: July 1987 Results/Conclusions: Kokanee abundance estimated from late June trawl data, was 540,000 fish in 1989. Anglers harvested 171,331 kokanee at 1.3 fish per hour. Creeled fish averaged 246 mm and 121 g; Yield was 3.1 kg/hr. Spawning escapement was similar to 1988 with 37,000 kokanee observed in five tributaries of the reservoir in mid-to-late September. Two-year old spawners (277 mm total length) comprised the bulk of the run.	1. FY 1992: Analyze data coordinated with Project 87-407. Recommendations will be made to the Council for measures to protect, mitigate, and enhance resident fish in Dworshak Reservoir. 2. April 1, 1992: Complete Final Report.
87-407	Dworshak Reservoir Investigation: Trout, Bass and Forage Species – NPT Project Officer: R. Austin Objectives: 1. Assess the status of rainbow trout, small mouth bass, and forage species in the reservoir. 2. Assess changes in these populations in relation to reservoir management.	Date initiated: July 1987 Results/Conclusions: An estimated 152,700 angler hours were expended from March 1989 through February 1990 to catch a total of 20,426 rainbow trout, 13,064 smallmouth bass, and 180 bull trout. Approximately 98% of the rainbow trout caught were of hatchery origin. Overall growth of smallmouth bass is better than that reported for other smallmouth bass populations at similar latitudes. Fish production has apparently stabilized	1. FY 1992: Analyze data coordinated with Project 87-99. Recommendations will be made to the Council for measures to protect, mitigate, and enhance resident fish in Dworshak Reservoir. 2. April 1, 1992: Complete Final Report.

PROJECT NUMBER	T I T L E	PROJECT STATUS	SCHEDULE AND MILESTONES
87-407 cont.		since the extreme population fluctuations noted during the 1970's.	

III. NEW PROJECTS

None.

7.15 ONGOING DRAWDOWN STUDIES

(Continue Cooperative Studies; Present Results to Council. Submit Recommendations by March 1, 1988.)

903(b)(3-4) [Abstract] **BPA shall fund research to develop operating procedures for Libby and Hungry Horse, including establishment of reservoir levels to protect resident fish and development of alternative means to resolve conflicts between drawdown limits and requirements for fish flows by means of the water budget. BPA shall submit results to the Council by March 1, 1988. Mitigation projects shall be identified in the Flathead Basin in relation to construction and operation of Hungry Horse. Results will be submitted to the Council by November 15, 1987.**

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To determine the effects of reservoir operations on fish in Libby and Hungry Horse Reservoirs. Identify mitigation projects in the Flathead Basin in relation to construction and operation of the Hungry Horse hydroproject.

Background and Progress to Date:

Projects at Libby and Hungry Horse Reservoirs have been funded since 1983. Both projects were designed to document the effects of water level fluctuations on resident fish. The fluctuations reduce primary and secondary production in the reservoirs, hence they have a direct impact on fish production. Annual reports from 1983 through 1988 document these effects. Mitigation alternatives for losses from the construction and operation of Hungry Horse Dam are described in the final report for BPA-funded Project 85-23. The models developed during the project have been critically reviewed by researchers at the University of Washington.

Plans:

Recommendations for further action will be submitted to the Council after completion of the studies. Biological models will be run concurrently with the System Analysis Model to help guide recommendations.

I. COMPLETED PROJECTS

None.

II. FY 1992 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
83-465	Quantification of Hungry Horse Reservoir Levels Needed to Maintain or Enhance Reservoir Fisheries - MDFWP Proiect Officer: F. Holm Objectives: 1. To study the effects of reservoir drawdown. 2. To develop a predictive model of hydro operations on resident fisheries, and recommend seasonal drawdown levels compatible with the needs of the fish.	Date initiated: April 1, 1983 Results/Conclusions: Reservoir drawdown has adverse effects on benthic macroinvertebrates and zooplankton, can increase competition between fish, and makes juveniles more accessible to predators. Fall drawdown is particularly damaging to cutthroat growth rates.	1. June 30, 1991: Biological model for the reservoir was completed and runs made concurrently with the Systems Analysis Model. The biological model has been critically reviewed and will be improved by researchers at the University of Washington. 2. The project is currently funded by IDU mitigation funds and is scheduled to end December 31, 1992.
83-467	Quantification of Libby Reservoir Levels Needed to Maintain or Enhance Reservoir Fisheries - MDFWP Proiect Officer: F. Holm Objectives: 1. To study the effects of reservoir drawdown. 2. To develop a predictive model of hydro operations on resident fisheries, and recommend seasonal drawdown levels	Date Initiated: April 1, 1983 Results/Conclusions: Gill net sampling indicates fluctuations in kokanee numbers. The reservoir model now includes a hydrologic component downstream to Duncan and Corra Linn dams.	1. June 30, 1991: Biological model for the reservoir was completed and runs made concurrently with the Systems Analysis Model. The biological model has been critically reviewed and is being improved by researchers at the University of Washington. 2. Work on fish entrainment through the Libby Dam penstocks and effects of operations on the river fishery will continue in FY 1992 and FY 1993 to increase utility of the reservoir model. 3. Effects of stream fluctuations on burbot will be examined in FY 1993.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
83-467 (cont.)	compatible with the needs of the fish. 3. To perform an instream flow study below Libby Dam.		

III. NEW PROJECTS

None.

WILDLIFE ACTION ITEMS AND TECHNICAL SUBJECTS

8.0 WILDLIFE SCOPING GROUP

Over the last two years, the Wildlife SG in the IPP has worked to develop and refine a set of criteria based on the Council's Wildlife Rule in order to evaluate wildlife project proposals for technical merit and Program consistency. These criteria have been applied in the evaluation of all project proposals received in the IPP. While the criteria are still considered to be in a "draft" stage, they have been used consistently during each evaluation session of the Wildlife SG. Further review and revision is expected in early FY 1993. Following, are the criteria in their current format:

Bonneville Implementation: BPA shall implement Council-approved mitigation priorities and plans at federal projects through the IPP. In that process, BPA will invite proposals for specific measures to achieve the mitigation priorities approved by the Council. Proposed measures will include estimates of capital, operation and maintenance funding needs. In reviewing proposals, the IPP will consider the extent to which proposals would:

A. Complement the activities of the region's state and federal wildlife agencies and Indian Tribes:

Documented evidence of complementing to include all pertinent federal and the region's state fish and wildlife agencies, and appropriate Indian Tribes. Agencies and Tribes will determine and explain complementarity. The SG will assign points to the agencies' and Tribes' decision. Points: 0 = no evidence of complementarity, and 3 = documentation of complementarity from all pertinent entities.

B. Be the least costly way to achieve the biologicalobjective:

Where equally effective alternative project proposals for achieving the same sound, biological objectives exist, the proposal with minimum cost will be given priority consideration. Proposal should demonstrate cost-effectiveness where alternative(s) exist. Points: 1 = less cost-effective, 3 = the same, and 3 = more cost-effective.

C. Protect or enhance special habitat or species that would not be available unless prompt action is taken; such proposals should be implemented only with the consent of the Council:

Is project a lost opportunity? Yes [1 No [1. Will require Council consent.

D. Encourage the formation of partnerships with other persons or entities, which would reduce project costs. increase benefits and/or eliminate duplicative activities:

Partnerships, reduce cost, increase benefits, or eliminate duplicate activities. Points: 0 = no evidence, 1 = anticipated or possible partnerships, and 3 = written documentation from partners and/or demonstrated commitment.

E **Have measurable objectives, such as the restoration of a given number of habitat units:**

Does the end product of the proposal have measurable objectives, such as Habitat Units and/or species response to actions? Points: 0 = not measurable, and 3 = measurable.

F **Not impose on BPA the funding responsibilities of others, as prohibited by section 4(h)(10)(A) of the Northwest Power Act (if in lieu of is determined. this project will not be considered):**

Wildlife mitigation expenditures shall be in addition to, not in lieu of, other expenditures authorized or required from other entities under other agreements or provisions of law. Points: 0 = in lieu of, and 3 = not in lieu of.

G. **Address special wildlife losses in areas that formerly had salmon and-steelhead runs that were eliminated by hydroelectric projects (for example, societal and Tribal wildlife losses>:**

The mitigation project that will be credited towards the dam and reservoir. Points: 0 = no blockage of anadromous fish by a dam, 2 = Dworshak Dam and Willamette (some projects) where anadromous fish make it to the base of the dam, and 3 = Blockage of anadromous fish by a dam.

H. **Protect high quality, native, or other habitat or species of special concern whether at the project site or not. including endangered, threatened, or sensitive species. Documentation of the species:**

For the main objective of the mitigation project. Points: 0 = does not address points listed below, 1 = historical potential and restorable, 2 = high quality native habitat without Threatened, Endangered, or Sensitive Species, and 3 = high quality native habitat that host Threatened, Endangered or Sensitive Species, or Species of Special Concern.

I. **Provide riparian or other habitat that may benefit both fish and wildlife:**

For resident and anadromous fish. Points: 0 = no benefit to fish, 1 = incidental benefits, 2 = secondary benefits, and 3 = immediate benefits.

J. **Address concerns over additions to public land ownership impacts on local communities, such as reduction or loss of local government tax base, special district tax base, or the local economic base; or consistency with local governments' comprehensive plans:**

Points: 0 = does not demonstrate tangible effort to address concerns, and 3 = does demonstrate tangible effort to address concerns.

K. **Use publicly-owned land for mitigation or management agreements on private land, in preference to acquisition of private land, while providing permanent protection or enhancement of wildlife habitat in the most cost-effective manner (explain why proposal is or is not cost-effective):**

Points: 0 = nonpermanent protection and /or fee-acquisition not cost-effective, 2 = fee-title acquisition that is cost-effective, 2 = combination of fee-title acquisition and (permanent easement and/or management agreement>, 3 = permanent easement on private land that is cost-effective, and 3 = permanent enhancement of public land that is cost-effective.

L. **Mitigate losses in-place; in-kind, where practical. When a wildlife measure is not directly-related to a hydroelectric-caused loss, the habitat units protected, mitigated or enhanced by the measure will be credited against mitigation due for one or more hydroelectric projects including power-related storage or regulatory dams:**

"In-place" is mitigation in the vicinity of the reservoir. "Out-of-place" is biologically, physically or politically not practical to mitigate in the vicinity of the reservoir. "In-kind" is habitat type or target species impacted by the reservoir. "Out-of-kind" is habitat type or target species not impacted by the reservoir. Points: 1 = out-of-kind or not practical in-kind, 2 = in-kind and out-of-place, but is practical in place, 3 = in-kind and out-of-place, but is not practicial in-place, and 3 = in-kind and in-place.

M. **Help protect or enhance natural ecosystems and species diversity over the lons term:**

Points: 1 = proposal addresses either naturally self-sustaining ecosystem or species diversity, 2 = previously natural self-sustaining ecosystem that needs management actions to restore it to a natural self-sustaining ecosystem that will provide species diversity, and 3 = natural self-sustaining ecosystem that provides maximum species diversity.

N. **Are based on. and supported by, the best available scientific knowledge and:**

Biologically possible.. Points: 1 = low confidence, 2 = medium confidence, and 3 = high confidence.

0. **Address achieving the Council's mitigation priorities (see attached sheet):**

The Council's subbasin priorities (upper Columbia, lower Columbia and Snake River), including habitat types target species and Habitat Units. Points: 1 = low priority, 2 = medium priority, and 3 = high priority.

The following criteria were used in the consideration of those projects proposals submitted for FY 1992 that were considered to be research-type projects.

1. Do the objectives of the proposal address a need for additional data relative to correct implementation decisions?

2. Will the proposal provide information necessary to fill in data gaps that will guide decisions in adaptive management and species needs in existing projects?

3. Does research proposal indicate that a sufficient literature search has been accomplished to determine if the proposal hypothesis has not already been addressed?

4. Does the proposal include a pilot project to test viability?

A research proposal does not necessarily have to address all of these evaluation criteria to receive favorable consideration.

Scoping Group Recommendations for Research Projects in FY 1992

Two project proposals were submitted to the Wildlife Scoping Group for evaluation. These are: Western Pond Turtle and the Sharptail Grouse Model Adaptation and Application Evaluation. The Wildlife Scoping Group's recommendation to the Policy Review Group and Bonneville Power Administration on these project proposals is as follows:

> The Scoping Group is unable to rank these two research projects under the criteria used for implementation projects. However, the Scoping Group believes these research proposals have technical merit and are needed to insure biologically sound and cost effective implementation activities. NOTE: The PNUCC representative to the Wildlife Scoping Group is on record as being strongly opposed to funding of research projects in general and these two projects specifically. The representative felt that only those projects producing a measurable return should be funded.

8.1 LOSS STATEMENTS
(Fund as Needs are Identified.>

1003(b)(3) [Abstract] Bonneville shall fund studies to develop statements of wildlife and habitat losses at the projects listed in Table 3 of the Fish and Wildlife Program, including power-related storage and regulatory dams. These statements shall take into account all existing information pertinent to the project area and shall address both realized and potential positive and negative effects.

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To obtain an estimate of the net impacts on wildlife and habitat from development and operation of Columbia River Basin Federal hydroelectric facilities. This information will be used in developing objectives to protect, mitigate, and enhance wildlife affected by hydro development and operation.

Backsround and Progress to Date:

The development of the hydroelectric system has caused both adverse and beneficial effects on wildlife and habitat. Action Item 8.1 calls for the funding of studies to identify net impacts on wildlife and wildlife habitat from hydroelectric development and operation. Study information will be used to develop Action Item 8.3: wildlife protection, mitigation, and enhancement plans.

Loss assessments have been completed for 22 of the 29 FCRPS facilities. Two facilities (Roza, and Chandler> do not require loss assessments. The U.S. Army Corps of Engineers has funded loss assessments for the Lower Snake facilities. The loss assessment for Chief Joseph Dam and Reservoir is completed.

Plans:

The Clearwater River Otter Study (Project 90-51) will continue and be completed in FY 1993. Funding for work behond March 31, 1992, will come from the Nez Perce Trust fund established by the Dworshak Wildlife Mitigation Agreement.

I. COMPLETED PROJECTS

None.

II. FY 1992 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
90-51	Clearwater River Otter Study – NPT Project Officer: S. Levy Objectives: Provide baseline data on population status, habitat use patterns, seasonal distribution, and food habitats of otters along the Clearwater River and its tributaries. This information will help identify site-specific limiting factors affecting otter populations in the Clearwater River drainage and help direct mitigation efforts towards the selection of effective mitigation techniques and locations of mitigation efforts.	Date Initiated: September 1990 Results/Conclusions: Final report due October 1993.	FY 1993: Continue monitoring of river otter per study. FY 1993: Draft report due August 30, 1993. Final report due October 30, 1993.

III. NEW PROJECTS

None.

8.2 LOSS STATEMENT CONSULTATIONS
(Begin Consultation)

1003(b)(4)(A) [Abstract] **Upon completion of the 1003(b)(3) studies, the appropriate fish and wildlife agencies, Tribes, BPA, and project operators for each project shall review the results and discuss the options available to provide wildlife protection, mitigation, and enhancement in accordance with the Northwest Power Act.**

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To provide a review of Action Item 8.1, loss assessments, and to assist in the development of Action Item 8.3, wildlife protection, mitigation, and enhancement plans. No projects/contracts will be funded by BPA in implementing this Action Item.

Background and Progress to Date:

Consultations have been held on 19 of the 29 FCRPS facilities. Consultations are not anticipated for six facilities.

Plans:

No loss statement consultations are expected in FY 1993.

Projects:

None.

8.3 MITIGATION PLANS
(Fund Development)

1003(b)(4) **[Abstract] Bonneville shall fund the development of mitigation plans for each of the projects listed in Table 3 of the Fish and Wildlife Program, including power-related storage and regulatory Dams.**

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To identify target wildlife species for protection, mitigation, and enhancement; to develop protection, mitigation, and enhancement goals/objectives; and to coordinate mitigation goals/objectives with interested and involved parties for Federal hydroelectric facilities.

Background and Progress to Date:

Action Item 8.3 pertains to the development of wildlife protection, mitigation, and enhancement plans. These plans are to take into account the wildlife impacts identified under Action Item 8.1, are to complement existing wildlife management plans and goals, and are to take into account the standards outlined in Measure 1003(b)(4)(C). Wildlife protection, mitigation, and enhancement goals/objectives developed in these plans are submitted to the Council for their approval and prioritization.

Mitigation plans have been completed for 16 of the 29 FCRPS facilities. Mitigation plans are not anticipated for seven FCRPS facilities (Roza, Chandler, Boise Diversion, and Lower Snake Facilities>.

Plans:

No mitigation plans are expected in FY 1993.

8.4 LIBBY DAM MITIGATION
(Initiate Advance Design for White-Tailed Deer, Mule Deer, Columbia Sharp-Tailed Grouse, and Waterfowl Projects; Continue Implementation and Monitoring of Bighorn Sheep Project: 1987)

8.5 LIBBY DAM MITIGATION
(Continue Advance Design for Deer, Waterfowl, Grouse Projects; Begin Implementation and Monitoring for Mule Deer Project; Continue Implementation and Monitoring of Bighorn Sheep Project: 1988)

8.6 LIBBY DAM MITIGATION
(Begin Implementation and Monitoring for White-Tailed Deer, Grouse, and Waterfowl Projects; Continue Implementation and Monitoring of Mule Deer and Bighorn Sheep Projects: 1989)

8.7 LIBBY DAM MITIGATION
(Continue Implementation and Monitoring for White-Tailed Deer, Mule Deer, Bighorn Sheep, Grouse, and Waterfowl Projects: 1990, 1991)

1003(b)(7) [Abstract] Bonneville shall implement Council approved mitigation priorities and plans at Federal projects through the Implementation Planning Process. Council-approved mitigation plans and priorities for Libby Dam are listed in Table 4 of the 1987 Fish and Wildlife Program.

Table 4 calls for BPA to undertake projects to enhance winter range in Northwest Montana to support a target carrying capacity of an additional 1,340 white-tailed deer, 485 mule deer, and 66 bighorn sheep. Table 4 also calls for the protection of 2,462 acres of prairie habitat for Columbia sharp-tailed grouse, and 3,418 acres of wetland habitat in the Flathead Valley.

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To undertake advance design and then begin implementation of the wildlife mitigation projects for Libby Dam.

Background and Progress to Date:

Action Items 8.4 through 8.7 pertain to the advance design and implementation of wildlife mitigation projects for Libby Dam.

In FY 1987, BPA began advance design for the wildlife habitat improvement and protection projects. In FY 1988, BPA continued advance design and began big game habitat improvement projects. Big Game habitat improvement projects were continued in FY 1989 and FY 1990, 1991 and 1992. Sharp-tailed grouse work was initiated in FY 1989 and continued in FY 1990, 1991 and 1992.

Plans:

BPA plans to continue and complete projects for bighorn sheep, mule deer, and sharp-tailed grouse in FY 1992. Future wildlife projects for Libby Dam will be funded through the Montana Wildlife Mitigation Trust Agreement.

I. COMPLETED PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS
88-43	Libby Wildlife Habitat Enhancement - USFS Proiect Officer: R. Walker Objectives: Initiate habitat improvement activities on Kootenai National Forest lands for mule deer and bighorn sheep. Treat approximately 1000 acres of key winter range by slashing and prescribed burning.	Date Completed: December 1991. Results/Conclusions: Not available at this time.
90-49	Libby/Hungry Horse Wildlife Project - MDFWP Proiect Officer: R. Walker Objectives: 1. Determine critical habitats necessary for the protection, enhancement, and maintenance of grouse on the Tobacco Plains. 2. Develop a mitigation strategy for grouse. 3. Refine the habitat protection programs for Libby and Hungry Horse. 4. Coordinate project activities with interested/involved parties	Expected Completion Date: June 1992 Results/Conclusions: Final report on grouse mitigation program due June 1992.

II. FY 1992 ONGOING PROJECTS

None.

III. NEW PROJECTS

None

8 . 8 HUNGRY HORSE DAM MITIGATION
(Initiate Advance Design/Begin to Implement Elk/Mule Deer Project; Begin Advanced Design, Interagency Coordination, Site Prioritization, and Appraisals for Black Bear/Grizzly Bear, Waterfowl, Terrestrial Furbearer Projects: 1987.)

8.9 HUNGRY HORSE DAM MITIGATION
(Continue Advance Design Waterfowl, Terrestrial Furbearer, Black Bear/Grizzly Bear Projects; Continue Implementation/Monitoring of Elk/Mule Deer Project: 1988.)

8.10 HUNGRY HORSE DAM MITIGATION
(Begin/Continue Implementation of Waterfowl, Elk/Mule Deer, Black Bear/Grizzly Bear Projects: 1989-1991.)

1003(b)(7) [Abstract] Bonneville shall implement Council approved mitigation priorities and plans at Federal projects through the Implementation Planning Process. Council-approved mitigation plans and priorities for Hungry Horse Dam are listed in Table 4 of the 1987 Fish and Wildlife Program.

Table 4 calls for BPA to undertake projects to enhance winter range in Northwest Montana to support a target carrying capacity of additional 133 elk. Table 4 also calls for the protection of 8,590 acres of riparian habitat for grizzly bears and 1,146 acres of wetland habitat, along with determining the feasibility of protecting 11,050 acres of old-growth timber for terrestrial furbearers.

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To undertake advance design and then begin implementation of the wildlife mitigation projects at Hungry Horse Dam.

Background and Progress to Date:

Action Items 8.8 through 8.10 pertain to the advance design and implementation of wildlife mitigation for Hungry Horse Dam.

In FY 1987, BPA initiated advance design for the wildlife habitat improvement and protection projects. In FY 1988, BPA continued advance design and began habitat improvement and protection projects. In FY 1989 and FY 1990, habitat improvement and protection projects were continued.

Plans:

BPA plans to continue and complete activities for the elk/mule deer habitat enhancement projects and the easement/acquisitions (habitat protection> projects in 1992. Future wildlife projects for Hungry Horse Dam will be funded through the Montana Wildlife Mitigation Trust Agreement.

I. COMPLETED PROJECTS

None.

II. FY 1992 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
88-113	Hungry Horse Wildlife Habitat Enhancement - USFS Project Officer: R. Walker Objectives: Begin habitat improvement activities on Flathead National Forest lands for elk and mule deer. Treat approximately 500 acres of key winter range by slashing and prescribed burning.	Date Initiated: September 1988 Results/Conclusions: Not available at this time.	December 1992: Project completion.
89-23	Montana Wildlife Habitat Protection - MDFWP Project Officer: R. Walker Objectives: 1. Obtain information to evaluate specific habitats for protection. 2. Provide coordination for project actions. 3. Protect specific habitats.	Date Initiated: September 1989 Results/Conclusions: None at this time.	1. September 1990: Project modification to provide for protection of specific habitats through Grant. 2. October 1992: Draft completion report due. 3. December 1992: Final completion report due.

III. NEW PROJECTS

None.

8.11 PUBLIC INVOLVEMENT OMITIGATION PLANS
(Fund Public Involvement Concerning Mitigation Plans>

1003(b)(4)(B) **[Abstract] Bonneville shall fund the entity or entities preparing mitigation plans to conduct appropriate public involvement activities to ensure that interested and affected parties are informed concerning the mitigation plans and have been afforded the opportunity to comment on them.**

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To conduct appropriate public involvement for the mitigation plans being developed pursuant to Measure 1003(b)(4). **No projects/contracts will be funded by BPA under this Action Item. Public involvement will be funded as part of the mitigation planning effort under Action Items 8.1 and 8.3.**

Background and Proqress to Date:

Public involvement on mitigation plans for Grand Coulee Dam and Chief Joseph in Washington; Palisades, Black Canyon, Anderson Ranch, Albeni Falls, and Dworshak and Minidoka Dams in Idaho; Bonneville, the Dalles, John Dav and McNarv **Dams on the Lower Columbia; and for the** Willamette facilities **in** Oregon **have been completed by the entities that prepared these plans.**

Plans:

No public involvement for mitigation plans are expected in FY 1993.

Projects:

None.

8.12 FUND IMPLEMENTATION OF MITIGATION PRIORITIES
(Fund Mitigation Priorities approved by the Council)

1003(b)(7) **Bonneville shall implement Council approved mitigation priorities and plans at Federal projects through the implementation planning process. Projects to be implemented shall take into consideration the standards listed under Measure** 1003(b)(7). **[Abstract]**

ACTION ITEM ACTIVITY SUMMARY

Objectives:

To identify, develop, and implement projects for priority wildlife mitigation objectives for Federal hydroelectric facilities.

Background and Progress to Date:

Wildlife mitigation has been implemented in the states of Oregon, Washington, or Idaho. Efforts to date have been directed towards Phase I implementation and acquisition.

The Council adopted wildlife mitigation priorities for Grand Coulee Dam in Washington; for Palisades, Black Canyon, Minidoka, Dworshak, Anderson Ranch, and Albeni Falls Dams in Idaho; and for the Willamette facilities in Oregon. BPA initiated funding for six projects in FY 1991 utilizing FY 1991 placeholder funds.

Plans:

BPA will continue activities begun under FY 1991 and 1992 projects. Activities will focus on completion of Phase I activities for projects started in FY 1991 and initiation of Phase I activities for projects proposed for FY 1992. Expectation for all of these projects to become part of statewide wildlife agreements/trusts. No new projects anticipated for FY 1993 start-up.

I. COMPLETED PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS
90-91	Dworshak Old Growth - IDFG Project Officer: J. DeHerrera Objectives: Protect, through acquisition, 127 acres of "old growth" timber and adjacent mature forest. Develop management plan.	Date Completed: July 1991 Results/Conclusions: Protection of 127 of climax western red cedar forest habitat. To be included in Dworshak Wildlife Agreement/Trust with State of Idaho and Nez Perce Tribe.

II. FY 1992 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
91-61	Pygmy Rabbit/Tracy Rock Sharp Tail Grouse - WDW Project Officer: J. DeHerrera Objectives: Phase I: Develop programmatic management plan, NEPA, memorandum of agreement with WDW, Habitat Evaluation Procedure (HEP) and easement terms and conditions for management area. Inventory and prioritize acquisition/protection areas. Phase II: Implement easement/fee acquisition as per plan. Initiate necessary operations and maintenance programs.	Date Initiated: August 1991 Results/Conclusions: None at this time.	FY 1993: Complete Phase I.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
91-60	Pend Oreille Wetlands - UCUT Project Officer: J. DeHerrera Objectives: Protect through fee acquisition, 440 acres of wetlands and riparian habitat. Develop management plan/NEPA and MOA with Kalispel Tribe. Implement management plan for enhancement and protection activities.	Date Initiated: September 1991 Results/Conclusions: Expected completion date: FY 1993.	FY 1993: Fund management plan with public involvement. Develop MOA and HEP analysis.
91-62	Blue Creek Winter Range - Spokane Tribe (UCUT) Project Officer: J. DeHerrera Objectives: Protect through easement acquisition 4,400 acres of Tribal lands. Fund management plan to address protection/ enhancement of target species: white-tail deer, sharptail grouse, ruffed grouse.	Date Initiated: FY 1991 Results/Conclusions: Expected completion date: FY 1993.	FY 1993: Complete programmatic management plan, MOA, and negotiate easement terms and conditions.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
91-63	South Fork Snake River – IDFG and TNC Project Officer: R. Walker Objectives: Phase I: Complete programmatic management plan, NEPA, MOA and HEP; develop easement terms and conditions. Inventory and prioritize acquisition/protection areas. Phase II: Implement easement/fee acquisition as per plan. Initiate necessary operations and maintenance programs.	Date Initiated: FY 1991 Results/Conclusions: None at this time.	FY 1992: Complete Phase I.
91-78	Burlington Bottoms – ODFW Project Officer: R. Walker Objectives: Develop management plan, habitat inventory and evaluation, public use plan, and other resource surveys.	Date Initiated: October 1991 Results/Conclusions: None at this time.	FY 1993: Complete Phase I

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
92-XXX	Lake Pend Oreille Wetlands – IDFG Project Officer: R. Walker Objectives: Phase I: Complete programmatic management plan, MOA and HEP.	Expected Start Date: July 1992	FY 1993: Complete Phase I.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
92-xxx	Amazon/Willow Creek - TNC Project Officer: R. Walker Objectives: Phase I: Complete programmatic management plan, MOA and HEP.	Exoected Start Date: June 1992	FY 1993: Complete Phase I.
92-xxx	Camas Prairie - IDFG Project Officer: R. Walker Objectives: Phase I: Complete programmatic management plan, MOA, and HEP.	Expected Start Date: July 1992	FY 1993: Complete Phase I.
92-xxx	Peregrine Falcon Reintroduction - NPS Project Officer: J. DeHerrera Objectives: Phase I: Complete programmatic management plan and MOA.	Expected Start Date: March 1992	FY 1992: Complete Phase I.
92-xxx	Hellsgate Winter Range - CCT Project Officer: J. DeHerrera Objectives: Phase I: Complete programmatic management plan, NEPA, MOA, and HEP.	Exoected Start Date: March 1992	FY 1993: Complete Phase I.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
92-xxx	Vancouver Lowlands – WDW Proiect Officer: J. DeHerrera Objectives: Phase I: Complete progammatic management plan, NEPA, MOA and HEP.	Exoected Start Date: March 1992	FY 1993: Complete Phase I.
92-xxx	Lower Yakima Valley – YIN Proiect Officer: J. DeHerrera Objectives: Phase I: Complete programmatic management plan, NEPA, MOA, and HEP.	Exoected Start Date: July 1992	FY 1993: Complete Phase I.

III. NEW PROJECTS

(No new start-ups in FY 93 – carryover of FY 91 & 92 projects).

8.13 DEVELOP MONITORING AND EVALUATION PROGRAM (In Consultation with Involved Parties, Develop a Monitoring and Evaluation Program)

1003(c) **Bonneville shall develop in consultation with the Council, the fish and wildlife agncies and tribes, utilities, and other interested parties a comprehensive program to monitor and evaluate the effectiveness of the wildlife program.**

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To develop and implement a program to monitor and evaluate wildlife projects funded by BPA.

Background and Progress to Date:

Wildlife mitigation to date has been limited to efforts for Libby and Hungry Horse Dams in the State of Montana. Monitoring and evaluation of these activities are being undertaken through the Montana Wildlife Mitigation Trust Agreement. Mitigation has not yet been initiated for facilities in Oregon, Idaho, and Washington. Monitoring and evaluation will be undertaken as part of the mitigation efforts in these states.

Plans:

In the expectation of wildlife trust agreements, monitoring and evaluation planning and activities would be undertaken through the individual Wildlife Mitigation Trust Agreement for each state, as in Montana. No expectation of development of regional plan at this time.

Projects:

No projects at this time.

FUND. OF HUNGRY HORSE/LIBBY MITIGATION

----- INNOVATIVE FUNDING OF HUNGRY HORSE/LIBBY MITIGATION
(Fund the Montana Wildlife Trust)

1003(b)(7) **[Abstract] Bonneville shall implement Council approved mitigation priorities and plans at Federal Projects. Council approved mitigation plans and priorities for Libby and Hungry Horse Dams are listed in Table 4 of the 1387 Fish and Wildlife Program.**

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

Implement the Wildlife Mitigation Agreement (Montana Trust Fund) negotiated between BPA and the State of Montana for funding wildlife mitigation for Libby and Hungry Horse dams.

Background and Proqress to Date:

BPA and the State of Montana signed a mitigation agreement in December 1988. The agreement establishes a $12.5 million Trust Fund to finance wildlife mitigation for Libby and Hungry Horse Dams. BPA made its first payment of $2 million to the Trust Account in December 1989 and a subsequent payment of $2 million in December 1990 and 1991.

Plans:

BPA plans to make its scheduled payment to the Trust account in December 1992.

I. COMPLETED PROJECTS

None.

II. FY 1992 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
89-52	Montana Wildlife Trust Project Officer: R. Walker Objectives: 1. Establishes a $12.5 million Trust Account. 2. Sixty year agreement. 3. Addresses impacts to wildlife from the development of Libby and Hungry Horse Dams. 4. Montana, through the use of Trust Account, responsible for Wildlife Mitigation.	Date Initiated: December 1988 Results/Conclusions: Initial payment of $2 million was made to the Trust Account in December 1989. Subsequent payment of $2 milion made in December 1990 and 1991.	1. December 1992: Make scheduled payment to the Trust Account. 2. Subsequent payments to be made on an annual basis.

III. NEW PROJECTS

None.

FUTURE HYDROELECTRIC DEVELOPMENT
ACTION ITEMS AND TECHNICAL **SUBJECTS**

9.1 APPLICATION OF PROGRAM SECTIONS 1204(a), (b), (c), AND (e) TO NEW PROJECTS

1103 (a-c, e) [Abstract] These measures direct BPA and the hydroelectric project operators and regulators not to license, exempt from license, relicense, propose, recommend, agree to acquire power from, grant billing credits for, or otherwise support any hydroelectric development in the Columbia River Basin without providing for numerous development conditions related to protection of fish and wildlife resources.

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To apply Program Section 1103(a-c, e) to all new hydro projects.

Background and Progress to Date:

BPA is applying these Program sections to the BPA Hydro Options Program.

Plans:

BPA will continue to apply these program sections to the BPA Hydro Options Program and any future hydro development.

Projects:

No BPA-funded projects.

9.3 ASSESSMENT OF CUMULATIVE EFFECTS
(Complete Study; Develop Methods: June 1987)

1103(b)(2) **Develop methods for assessing the cumulative effects of hydroelectric development upon fish and wildlife in the Columbia River Basin.**

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To review all pertinent literature on potential cumulative hydroelectric effects, for specific key fish and wildlife species; to analyze existing techniques for assessment of identified cumulative effects; to develop an array of recommended pertinent assessment techniques for a cumulative effects method; and to develop a hypothetical example of a cumulative assessment using the method.

Background and Progress to **Date:**

Development of a cumulative effects method supported the Council's desire to have all applications or proposals for hydroelectric development reviewed in a consolidated manner. Project 84-41 (completed in 1987) developed a methodology to assess potential cumulative effects.

Plans:

BPA has no plans for further funding.

Projects:

No BPA-funded projects.

9.4 TURBINE INTAKE SCREENS
(Develop New Designs, Complete Tests, Report to Council: January 1989)

1103(d) **Bonneville shall fund studies to determine the effectiveness of new designs for turbine intake screens and their suitability for application at small hydroelectric projects.**

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To develop a new standard fish screen that is biologically efficient and cost-effective for hydro developers.

Background and Progress to Date:

Installation and maintenance of currently available screening systems are expensive and must be tailored to the site. Most present screen systems have not been tested sufficiently to be characterized as proven. Existing designs and new designs must be evaluated to determine which designs are biologically and economically efficient. The suitability of screen designs for application at small hydroelectric facilities must also be determined. The intent is to provide acceptable fish screen designs with general applicability for regional hydropower developers.

Plans:

Presently deferred, since BPA's adoption of Protected Areas in its Long-Term Intertie Access Policy provides protection for fish investments through denying access to the Pacific Northwest-Pacific Southwest Intertie to any new hydroelectric projects located in designated Protected Areas of the Columbia River- Basin.

Projects

No BPA-funded projects.

10.1- EXPENDITURE AND OBLIGATION PLANS
10.3 **(Submit to Council by September 15 of Each Year. Update and Submit Information Quarterly. Submit Review of Previous Year. Report Expenditures by Measure.>**

1203(a,c,d) **[Abstract] These measures describe Program implementation by Federal project operators and regulators and BPA, consultation and coordination, and BPA funding of the Program.**

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

The Annual Implementation Work Plan (AIWP) describes BPA plans for implementation of the Council's Program and, in particular, the Action Plan. The AIWP is intended to contain:

1. A report on progress to date on each Action Item.

2. A description of the activities to be undertaken under each Action Item, including;

   a. the objective of each activity, and

   b. the schedule for each activity, including key decision points and major milestones.

Background and Progress to Date:

Annually since FY 1986, BPA has completed a Program Work Plan and submitted this plan to the Council.

In 1987, BPA began developing a Program Implementation Planning Process (IPP) that would provide an opportunity for the agencies, Tribes, and other interested parties to become more involved in planning the implementation of the Program. Development of this process was completed in 1988, and the IPP (see Section III)was endorsed by the BPA Administrator and the Chairman of the CBFWA on October 19, 1988. The IPP's Policy Review Group (PRG) was formed in late 1988. In January 1989, the PRG began providing BPA with policy and funding recommendations related to Program implementation. The AIWP is based on the outline developed by the PRG during Step 1 of the annual IPP annual cycle.

Plans:

The AIWP will continue to be developed through the IPP.

PHASE ONE PROGRAM AMENDMENTS

PRIORITY **SALMON AND STEELHEAD PRODUCTION AND HABITAT AMENDMENTS**

1.1 WATER DIVERSION SCREENING AND PASSAGE

1.1(c) **[Abstract] BPA: Fund the costs associated with operation of a Fish Screening Oversight Committee and Technical Work Groups, to be established by NMFS by October 1, 1991. The committee will provide overall program direction and priorities and oversight of objectives, funding opportunities, standards, biological criteria and evaluation. The primary purposes of the Technical Work Groups are to recommend project priorities within their area of concern to the oversight committee and to work with the entity constructing the diversion screens and passage facilities to assure the facilities are constructed according to the prescribed criteria in the Program measure.**

IMPLEMENTATION ACTIVITY SUMMARY:

Objectives:

Find and participate in the planning of priority list screen and passage facilities needed to be constructed or renovated in the Columbia River Basin.

Background and Progress to Date:

The Fish Screening Oversight Committee (FSOC) has been formed and is developing a regional plan of high priority (short-term) and long-term needs for fish passage screening and pump irrigation improvements.

Plans:

Develop a list of facilities, determine appropriate funding entities and cost sharing arrangements, conduct environmental analysis, design, and construct facilities and improvements.

I. COMPLETED PROJECTS

None.

II. FY 1992 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
92-28	Regional Fish Screen Oversight Committee - PSMFC Project Manager: T. Clune Objectives: Form the Fish Screening Oversight Committee (FSOC), develop a plan of priority projects, identify appropriate technical work groups, and correct high priority screening and passage problems.	Date Initiated: November 1991 Results/Conclusions: The FSOC has been formed.	1. 1992: Develop a regional plan of high priority and long-term fish passage and screening improvements. • Initiate NEPA and design of high priority projects. • Identify cost sharing arrangements. • Implement high priority improvements with Mitchell Act funds. 2. 1993: Continue implementation under agreed upon cost sharing arrangements.

III. NEW PROJECTS

None.

1.2 PASSAGE AT STARBUCK DAM, TUCANNON RIVER

1.2(a) **Bonneville: Fund (1) placement of structures immediately downstream of Starbuck Dam, to provide sufficient backwater for spring chinook and steelhead to jump the dam during spring runoff; and (2) construction of a structure at the base of the dam to allow fall chinook passage during low flows.**

IMPLEMENTATION ACTIVITY SUMMARY:

Objectives:

Improve passage of fall chinook and spring chinook salmon; reduce effects of delay on spring chinook.

Background and Progress to Date:

WDF has distributed a conceptual design for TWG review. A contract is in place for WDF to design and build improvements.

Plans:

BPA and WDF will consult with NMFS as required under ESA. WDF will complete design and build improvments in 1992.

I. COMPLETED PROJECTS

None.

II. FY 1992 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
92-25	Starbuck Passage Improvements - WDF Project Officer: J. Marcotte Objectives: Improve passage for spring chinook to reduce delay; provide passage for fall chinook.	Date Initiated: January 1992 Results/Conclusions: None at this time.	1. February 1992: Contract in place. 2. August 1992: Design complete. 3. October 1992: Construction complete.

III. NEW PROJECTS

None.

2.1 SNAKE RIVER SOCKEYE REBUILDING

2.1(a) [Abstract] BPA: Fund the program of the Shoshone-Bannock Tribes and IDFG to protect and rebuild Snake River sockeye with the features specified in the Program amendment.

IMPLEMENTATION ACTIVITY SUMMARY:

Objectives:

Rebuild Stanley Basin sockeye population to levels that would become self-sustaining.

Background and Progress to Date:

Completing the restoration of sockeye salmon runs in the Stanley Basin will require a long-term effort and complex integrated approach. The projects funded under this section are only a part of the overall efforts to recover the population. The National Marine Fisheries Service (NMFS) has formed a Recovery Team that will develop a Recovery Plan for NMFS review and approval.

There are presently three projects being funded: Shoshone Bannock Tribes, Project 91-71, Sockeye Salmon Habitat and Limnologic Research; University of Idaho, Project 90-93, Genetic Analysis of Oncorhynchus; and Idaho Department of Fish and Game, Project 91-72, Idaho Sockeye Salmon Research and Recovery. A fourth project will be funded in early CY 1992 with the NMFS. This project will proved for geographically separate captive brood populations to spread the risk of catastrophic loss of this gene pool due to mechanical failure, human error, or disease.

Plans:

To continue the projects and provide technical review and input via the Stanley Basin Technical Oversight Committee.

I. COMPLETED PROJECTS

None.

II. FY 1992 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
90-93	Genetic Analysis of Oncorhynchus nerka - UI Project Officer: A. Ruger Objectives: 1. Determine if Redfish Lake O. nerka comprise more than one deme. 2. Investigate DNA analyses as genetic tools. 3. Compare anadromous and non-anadromous O. nerka in ecosystems where sockeye have been blocked and re-established.	Date Initiated: August 1, 1991 Results/Conclusions. Preliminary results indicate there is more than one spawning deme in Redfish Lake.	

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
91-71	Sockeye Salmon Habitat and Limnologic Research - Shosone-Bannock Tribes Project Officer: A. Ruger Objectives: 1. Restore fertility of nursery lakes to levels conducive to optimum sockeye growth. 2. Modify existing migratory blocks at outlets of nursery lakes to allow free passage of sockeye salmon, while providing barriers to rough fish where necessary. 3. Determine 0. nerka population characteristics and densities in the Stanley Basin nursery lakes in cooperation with IDFG.	Date Initiated: August 20, 1991 Results/Conclusions: None at this time.	1. Limnologic research in progress. 2. Planning for barrier modifications in progress.
91-72	Idaho Sockeye Salmon Research and Recovery - IDFG Project Officer: A. Ruger Objectives: 1. Capture 0. nerka smolts and adults from Redfish Lake and establish captive 0. nerka broodstock from juveniles emigrating from Redfish Lake. 2. Develop holding/rearing at Eagle Fish Health Research Facility. 3. Provide project planning, technical consultation, project coordination, technical review, and public review.	Date Initiated: June 11, 1991 Results/Conclusions: Outmigrants and adults were captured and are being reared or were spawned. The progeny will be used to develop a captive broodstock.	All objectives are in progress and will continue to 1996.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
92-XXX	Redfish Lake Sockeye Salmon Captive Broodstock Rearing and Research - NMFS	Expected Start Date: February 1, 1992 Results/Conclusions: None at this time.	1. Incubation, rearing, spawning 12-91 to 1996. 2. Captive broodstock research, 1992-1996.

Project Officer: A. Ruger

Objectives:

1. Incubation and rearing of 1991-brood Redfish Lake sockeye salmon.
2. Captive broodstock research; comparison of freshwater and seawater rearing for 1990-brood Lake Wenatchee stock sockeye salmon.
3. Captive broodstock research; evaluation of 1991-brood progeny of anadromous Lake Wenatchee stock sockeye salmon held full-term to maturity in fresh water vs. 1991-brood progeny of Lake Wenatchee stock parents with a period of seawater residence.

III. NEW PROJECTS

None.

2.2 PROTECTING ENDEMIC SPRING CHINOOK IN MINAM AND WENAHA RIVERS

2.2(a) **Bonneville: Fund planning design, construction and operation of spring chinook trapping facilities on the lower reaches of the Minam and Wenaha rivers.**

IMPLEMENTATION ACTIVITY SUMMARY:

Objectives:

Prevent straying of non-local hatchery returning adults into these two Grande Ronde tributaries which are considered genetic sanctuaries; stay within ODFW wildfish guidelines.

Background and Progress to Date:

This action item has been folded into NEOH as early implementation of that project siting and conceptual design work is underway. Consultation with USFS is also occurring because of possible conflicts with Wild and Scenic Rivers.

Plans:

Once siting and conceptual design are complete, consultation with USFS will continue to determine compatibility with Wild and Scenic guidelines. A NEPA document may be prepared if the project looks feasible. Consultations with NMFS under ESA provisions would also occur.

Projects:

Measure 2.2(a) is being implemented through Project 88-53 (see entry for this project under Action Item 4.16.1 - 4.16.2).

2. PORTABLE ADULT COLLECTION/HOLDING AND JUVENILE ACCLIMATION SYSTEMS

2.3(a) **Bonneville: Fund the planning, design, construction and operation of a demonstration project for the development of portable adult collection and holding facilities for juvenile acclimation/release facilities. The project should build on the earlier work funded by Bonneville (see Compendium of Low-Cost Pacific Salmon and Steelhead Trout Facilities and Practices in the Pacific Northwest, September 1984) and other relevant information and experience. The project should be initiated in 1991 and facilities in place in 1992.**

2.3(b) **The demonstration project should involve only existing hatchery programs of fish populations that are currently being supplemented.**

IMPLEMENTATION ACTIVITY SUMMARY:

Objectives-:

Demonstrate broad regional applicability of portable fish trapping and acclimation facilities, while doing so within the real-time constraints of an actual production project.

Background and Progress to Date:

Folded into NEOH as early implementation. Siting/concept design work currently underway.

Plans:

Review recommendations of siting/concept design report, decide on further implementation needs and schedule.

Projects:

Measure 2.3(a) is being implemented through Project 88-53 (see entry for this project under Action Item 4.16.1 - 4.16.2).

2.4 MINIMIZE IMPACTS OF HATCHERY FISH ON WILD STOCKS

2.4(a) [Abstract] BPA: Fund fishery agencies and tribes, and other experts as needed, to develop by December 31, 1991, in consultation with the Council's genetics team, basinwide guidelines to minimize genetic and ecological impacts of hatchery fish on wild stocks. Submit a report to the Council for public review in early 1992.

2.4(b) Bonneville: Fund the design of an impact assessment to examine the effects if the Columbia River Basin hatcheries (individually and in the aggregate> on wild fish. The impact assessment would use the best available scientific knowledge and state-of-the-art assessment procedures. Report by December 31, 1991, to the Council when the design is completed.

IMPLEMENTATION ACTIVITY SUMMARY:

Objectives:

To develop operational policies, implementation guidelines, operating criteria, production schedules, and performance standards consistant with NMFS Recovery Plan.

Background and Progress to Date:

BPA has formed the Integrated Hatchery Operation Team (IHOT) and is in the process of developing the SOW and budget to implement the Production and Operating Plan for Artificial Production described in the Production sections of the EIP and Council's Phase Two Amendments.

Plans:

Future projects i.e., hatchery survivals, hatchery adults, etc., will progress with the IHOT during the next two to three years.

I. COMPLETED PROJECTS

None

II. FY 1992 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
92-43	Integrated Hatchery Operations Team - Various Agencies and Tribes Project Officer: J. Bauer Objectives: Develop for all existing and proposed facilities: 1. Operational policies. 2. Production schedules. 3. Operating guidelines for policies. 4. Implementation guidelines. 4. Performance standards.	Date Initiated: February 1992 Results/Conclusions: None at this time.	March 1992: Develop detailed descriptions for each policy. January 1993: Begin Annual Reports to Council. March 1993: Have developed implementation guidelines, performance standards and operating guidelines consistent with NMFS Recovery Plan. June 1993: Submit Plan for implementing Production Policies.

III. NEW PROJECTS

None.

2.5 MARKING HATCHERY SALMON

2.5(b) **Bonneville: Fund the fisheries agencies and tribes to coordinate with technical experts and representatives of the Salmon 'Summit to determine the feasibility of marking all hatchery salmon, scope the marking program, and identify alternative uses for the information obtained. Specifically, the information should provide answers to questions needed to resolve conflicts between hatchery programs and goals for naturally-spawning fish stocks, and improve hatchery fish survival. Report to the Council by February 1, 1992.**

2.5(c) **Bonneville: Starting in 1992, fund a program to mark all salmon from hatcheries having high stray rates, using the mark determined by fishery managements agencies to be acceptable for this purpose, and to-evaluate the effectiveness of such marking.**

IMPLEMENTATION ACTIVITY SUMMARY:

Objectives:

Fund and develop a report in the feasibility of marking all hatchery salmon. As soon as possible, mark all salmon with a high degree of straying.

Fund a project to study the feasibility of developing mass marking methods for salmon.

Background and Progress to Date:

No information received from agencies and Tribes on priority listing of hatcheries with high degree of straying.

Plans:

Future projects and required funding will be identified after agencies and Tribes provide list of hatcheries and/or programs to be affected.

I. COMPLETED PROJECTS

None.

II. FY 1992 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
92-xxx	Mass Marking Hatchery Salmon - PSMFC and various agencies. Project Officer: J. Bauer Objectives: 1. Develop a report on the feasibility of marking all hatchery salmon. 2. Fund a study on development of mass marking technology. 3. Mass mark all hatchery salmon with a high degree of straying.	Expected Start Date: June 1992 Results/Conclusions: None at this time.	1992: Begin all three objectives. 1993: Complete objective 1. 1994: Increase number of hatcheries being marked. 1995: Ongoing. 1995: Ongoing marking and beginning of return evaluation. 1996: Have all hatchery fish marked and follow adaptive management.

III. NEW PROJECTS

None.

2.6 RINGOLD HATCHERY SITE ENHANCEMENT AND WATER DEVELOPMENT

2.6(a) **Bonneville: Insofar as needed to secure a 100 cfs water right for the Ringold hatchery facility, fund planning, design and construction of the necessary facilities to capture up to 100 cfs of water and deliver it to the areas of the hatchery site.**

2.6(b) **Bonneville: Fund planning, design and construction of the facilities determined to be necessary to improve existing production. Report to the Council for approval before proceeding with construction.**

IMPLEMENTATION ACTIVITY SUMMARY:

Objectives:

Coordinate with WDF, WDW, and Washington DOE to determine the reasonableness of EPA involvement in developing the water right. Need to answer question: What production will the additional water benefit?

Background and Progress to Date:

Discussion with Washington DOE and WDF. WDF will apply for another application extension before April 1, 1992.

Plans:

On-site visit and meetings scheduled for January 1992. Policy guidance needed from PJ and others prior to January meetings.

I. COMPLETED PROJECTS

None.

II. FY 1992 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
92-XXX	Ringold Hatchery Water Rights Acquisition - WDW **Project Manager**: T. Clune Objectives: Investigate the feasibility of acquiring up to 100 cfs additional water supply for Ringold Hatchery Complex.	Expected **Start Date**: June 1992 **Results/Conclusions**: None at this time.	1992: Meet with WDF, WDW, and Washington DOC to determine the feasibility of acquiring the additional water right. If feasible, construct collection and distribution facilities for the water supply.

III. NEW PROJECTS

None.

2.7 SNAKE RIVER FALL CHINOOK GENETIC STRUCTURE

2.7(a) **Bonneville: Fund studies to determine the genetic structure and population status of Snake River fall chinook.**

IMPLEMENTATION ACTIVITY SUMMARY:

Objectives:

To fund a study to identify substocks (genetic structure> of the Snake River fall chinook population.

Background and Progress to Date:

This work is progressing through efforts of the WDF.

Plans:

See project description on next page.

I. COMPLETED PROJECTS

None.

II. FY 1992 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
92-XXX	Upstream Passage, Spawning, and Stock Identification of Fall Chinook in the Snake River and Tributaries - WDF Project Officer: D. Watkins Objectives: Through radio telemetry, determine the disposition of fall chinook adults betwee Ice Harbor and Lower Granite dams. Determine the amount of hatchery straying and the stock composition or genetic profile of the returning adults and their offspring.	Expected Start Date: July 1, 1992 Results/Conclusions: None at this time.	July 1, 1992: Start project. March 1, 1994: Project completion.

III. NEW PROJECTS

None.

3.1 MODEL WATERSHEDS

3.1(a) **[Abstract] BPA: Fund planning for three or more model watershed projects, including at least one in Oregon, Idaho, and Washington, to comprehensively address land and water factors that limit salmon and steelhead productivity in tributary areas.**

3.1(f) **Bonneville: After Council approval, share in the costs of implementing model watershed projects. Planning should be completed expeditiously so that implementation can begin in 1992.**

IMPLEMENTATION ACTIVITY SUMMARY:

Objectives:

Idaho, Washington, and Oregon will select watersheds which can be cooperatively managed for maintenance, rehabilitation, and enhancement of the anadromous fisheries resources. This will include State, and Federal agencies, Tribal governments, county and municiple governments, private landowners and resource developers, environmental groups, ect. The watershed plans will consider all existing and future planning efforts such as Forest Plans, subbasin **plans, and resolve possible conflicts. Project cost sharing will be implemented where ever possible. Monitoring and evaluation goals and actions will play an integral part in assessing watershed plan progress. The watershed plans will be** longterm **in nature to insure full implementation. Valuable information gained from planning and implementation will be transferred to other subbasins and watersheds.**

Background andProgress to Date:

Each state will independently nominate and submit watersheds to the Council for final approval. Tom Cline of Oregon's Water Resources Council has tentatively identified the Grande Ronde watershed as one of their candidates. Washington and Idaho have not designated specific agencies **or personnel to this project. None of the states have requested funding for planning or implementation of model watershed projects at this time.**

Plans:

Council staff member John Marsh will act as coordinator for this project. It may be incorporated into the Council's Phase 3 amendment process which will deal with the subbasin **plans and the ISP. Any funding requests for FY 1993 will probably be incorporated within the general scope of habitat projects. Council and state agencies will be made aware of the need to quickly establish goals and funding requests if they are to be implemented in FY 1993.**

Projects:

No projects at this time.

4.1 **Bonneville: Fund a study of the spawning and rearing habitats utilized by fall chinook salmon in the Snake River and examine factors influencing their migratory behavior.**

IMPLEMENTATION ACTIVITY SUMMARY:

Objectives:

Fund the study referred in Measure 4.1.

Background and Progress to Date:

The study was started August 1, 1991, under Action Item 6.2 (1987 Program) and is progressing on schedule. The first annual report is due in July 1992.

Plans:

Continue funding study through completion in 1996.

I. COMPLETED PROJECTS

None.

II. FY 1992 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
91-29	Identification of the Spawning, Rearing, and Migratory Requirements of Fall Chinook Salmon in the Columbia River Basin – USFWS Project Officer: D. Watkins Objectives: Identify the physical and biological factors influencing spawning of fall chinook salmon in the free-flowing Snake River and their rearing and seaward migration in Columbia River basin reservoirs. 1. Identify and describe the characteristics of fall chinook salmon spawning habitat in the Snake River, and estimate the extent of utilization and production of emergent fry. 2. Identify and describe the characteristics of rearing habitats used by subyearling chinook salmon in mainstem reservoirs. 3. Describe the factors influencing the migratory behavior of subyearling chinook salmon in mainstem reservoirs.	Date Initiated: August 1, 1991 Results/Conclusions: Work completed for FY 91 includes PIT tagging and tracking of fall chinook subyearling and lab work to determine the effect of flows, photoperiod and physiological development on migration timing of fall chinook subyearlings. FY 92 spawning ground surveys have been completed. Conclusions will be made in the annual report.	FY 1991 – 1995: Contractor to provide annual reports. FY 1996 – Project completion and final report.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
	4. Estimate the relationships among various flow regimes and the timing, travel time, and survival of outmigrating subyearling chinook salmon in mainstem reservoirs. 5. Synthesize data and prepare final report.		

III. NEW PROJECTS

None.

4.2 PIT TAG DETECTION FACILITIES

4.2 **[Abstract] BPA: Fund the installation of juvenile PIT tag detection facilities at Little Goose, Lower Monunmental, John Day, McNary, and Bonneville dams, to facilitate assessments of naturally producing stocks and improve the quality of monitoring the effects of juvenile and adult fish passage. Coordinate with the CBFWA and MEG to develop a list of proposed priorities and report to the Council by September 15, 1991. Following Council review and approval of the priorities, implement construction of the facilities.**

IMPLEMENTATION ACTIVITY SUMMARY:

Qbiectives:

To design and construct juvenile PIT tag detection facilities at Bonneville Dam.

Background and Progress to Date:

The NMFS completed a feasibility study in FY 1991.

Plans:

Design will begin in FY 1992. Environmental evaluation will begin once NEPA requirements are determined.

I. COMPLETED PROJECTS

None.

II. FY 1992 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
91-40	Bonneville Dam Juvenile Pit Tag Detection Facility – USACE Project Officer. S. Levy Objectives: Design and construct juvenile PIT tag detection facilities at Bonneville Dam.	Expected Start Date: March 1992 Results/Conclusions: None at this time.	1. FY 1992: Scoping and commence environtmenta work. 2. FY 1993: Continue environmental work. 3' FY 1994: Final design: begin construction. 4. FY 1995: Complete construction. Facilities installed and operating.
91-64	Little Goose/Lower Monumental PIT-Tag Facility – USACE Project Officer: W. Maslen Objectives: This contract funds the Architect-Engineer to provide the plans, specifications, design analysis, construction and installation of a Passive Integrated Transponder (PIT) Tag Detector System at the Little Goose Juvenile Fish Facility. Facilities at Little Goose Dam would enable conduct of special juvenile fish monitoring and research activities associated with ESA and increase the capability to measure the effectiveness of any Program action.	Date Initiated: March 1991 Results/Conclusions: PIT-tag detector gate was installed at Little Goose Dam.	FY 1993: PIT-tag facility is scheduled to be installed at Lower Monumental Dam.

III. NEW PROJECTS

None.

PROGRAM-RELATED, NON-MEASURE PROJECTS

----- PROGRAM-RELATED PROJECTS

MEASURE LANGUAGE:

Not applicable. These are non-measure projects.

TECHNICAL SUBJECT ACTIVITY SUMMARY:

See individual projects in the following table.

I. COMPLETED PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS
86-13	Augmented Fish Health Monitoring in Washington – WDW	Date initiated/completed: 87-13: Completed August 1991 87-54: Completed December 1991 87-117: Completion expected June 1992 87-118: Completion expected June 1992 87-119: Completion expected July 1992 Results/Conclusions: Projects have assured consistent fish health data monitoring and reporting in the Columbia Basin anadromous fish hatcheries. Project summaries have been written to verify what parameters should be either dropped or continued in a monitoring program.
86-54	Augmented Fish Health Monitoring in Washington – WDF	
87-117	Augmented Fish Health Monitoring in Idaho – IDFG	
87-118	Augmented Fish Health Monitoring in Oregon – ODFW	
87-119	Augmented Fish Health Monitoring – USFWS	
	Project Officer: R. Morinaka	
	Objectives: Collect data in a systematic, standardized manner and provide a system of rapid storage and retrieval of fish health/production information in the anadromous fish hatcheries of the Columbia River Basin. Begin to develop a documentation and data retrieval system that can be used by persons who are not fish diagnosticians.	

1. Continuing: Fund a comprehensive fish health management system through standardized monitoriny.

2. Continuing: Ensure compatibility of the data yenerated by these projects with that of the Artificial and Natural Production Data Base; (Program Measure 204).

II. FY 1992 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
82-13	Coded Wire Tag/Sampling Program Recovery - PSMFC Project Officer: P. Poe Objectives: Support WDF, WDW, and ODFW fishery recoveries of coded-wire tagged salmon and steelhead.	Date initiated: 1982 Results/Conclusions: Commercial and sport fishery recoveries of coded-wire tagged salmon and steelhead were de-coded, compiled, and reported.	Continuing: BPA will continue to fund coded-wire tag recoveries.
89-20	Airlift Fabrication Project Officer: W. Maslen Objectives: Provide funding for fabrication of airlift fish sampling devices and miscellaneous supporting hardware for Ice Harbor, John Day, and The Dalles Dams, as specified in the Fish Spill Memorandum of Agreement. This equipment supports monitoring programs specified under projects 84-14 and 87-127.	Date Initiated: 1989 Results/Conclusions: One airlift sampling device was fabricated for use at The Dalles Dam.	Additional airlift fish sampling devices may be fabricated, as agreed by the parties.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
90-80	Columbia River Basin PIT-Tag Information System (PTAGIS) – PSMFC Project Officer: P. Poe Objectives: 1. To develop, operate, maintain, and enhance a long-term Columbia River Basin-wide database of information on PIT-tagged fish to ensure that all PIT-tag information is available in a timely and useful manner to all state, Federal, Tribal and other interested entities. 2. To perform all other activities related to Columbia River PIT-tag systems including: maintenance and documentation of fish tagging and interrogation systems; operation and maintenance of equipment at the remote sites. Provision of technical support for software and hardware; provision of training to users; and purchase of PIT-tags and associated equipment.	Date Initiated: May 1990 Results/Conclusions: PTAGIS office established at the Pacific States Marine Fisheries Commission (PSMFC) in Portland in 1990. Completed transfer of data and maintenance of PIT tage systems from NMFS, Seattle to PTAGIS, Portland, 1991.	1. 1992: Operate, maintain, and enhance Colombia River PIT-tag systems and database. 2. Continuing: BPA will continue to fund PTAGIS.

III. NEW PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
90-60	Bypass Evaluations Project Officer: W. Maslen Objectives: As provided under the terms of the Fish Spill MOA. 1. Determine fish guiding efficiency of prototype bypass screens. 2. Determine fish guiding efficiency of installed bypass screens. 3. Evaluate various means to improve fish guiding efficiency of substandard bypass facilities.	New Project Bypass evaluations have not been conducted under the terms of the Fish Spill Memorandum of Agreement.	FY 1993 and beyond: Provide funding as necessary to conduct prototype and post-installation testing of bypass screens (and sluiceway where appropriate), as provided in the Fish Spill Memorandum of Agreement. FY 1992 - 1993: Prototype testing of standard-length submersible traveling screens at Lower Monumental Dam, as per terms of the fish spill MOA. FY 1993 - 1994: Prototype testing of standard length submersible traveling screens at Ice Harbor Dam, as per terms of Fish Spill MOA.

IX. APPENDICES

APPENDIX A

NON-PROGRAM, INTERNAL SUPPORT PROJECTS

This section of the AIWP lists and describes BPA Division of Fish and Wildlife internal support projects. These projects do not implement measures in the Program and were not subject to PRG review as part of the IPP. The projects are included in the AIWP to help the PRG and the public to better understand what BPA is doing.

I. COMPLETED PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS
89-47	**Technical Assistance - Consultant** **Project Officer:** D. Johnson Objectives: 1. **Provide recommendations on fish passage related research and monitoring;** 2. **Assist in development of research designs.**	**Date Completed: FY 1992** Results/Conslusions: **Various technical recommendations on Water Budget Effectiveness and Reservoir Mortality have been made to BPA.**

II. FY 1992 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
85-87-1	**Anadromous Fish Planning and Implementation Decision Support System – RFF** Project Leader, K. Beale Objectives: 1. **Complete cost-effectiveness (C-E) analysis of alternatives in selected Subbasin Plans, utilizing assistance from all possible regional entities.** 2. **Compare existing and pro-**	**Date Initiated: FY 1991** Results/Conclusions: **A Stochastic Life-Cycle Model (SLCM) was developed to analyze biological effects of proposed actions. Supporting models have been developed for cost-effectiveness analysis. Subbasin analysis is completed. System-wide analytical capability is available for use and has been demonstrated to the Council and other interest groups. (Objectives 1 and 2 are complete). Technical participation in various work groups**	**FY 1992: Complete C-E analysis of selected Subbasin Plans. Prepare C-E comparison of all passage and production alternatives consistent with BPA passage alternatives. Assist in application of C-E analysis to Council's Program amendment process.** **FY 1993: In coordination with BPA and the Monitoring and Evaluation Work Group and UW's Center for Quantitative Science, complete mitigation assessment models and user guides, and provide user support. Review methods used to evaluate fish production potential and cost of plan options.**

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
85-87-i (cont.)	posed fish passage alternatives with propagation alternatives of Subbasin plans. 3. Provide technical participation on Council's Analytical Methods Work Group (AMWG) to integrate System Planning Model (SPM) and Stochastic Life-Cycle Model (SLCM). 4. Long Term: Complete model components needed for C-E analysis of mitigation issues, including training and assistance needed for use of models by analysts in the region.	is ongoing. Objective 4 is ongoing. FY 1992 schedule has been maintained. During 1992, RFF will develop a discussion paper on adaptive management, including discussion of risk analysis. A user's guide for C-E models is planned for 1992.	
86-118	Fish and Wildlife Task Order Agreement - BPNL Project Officer: D. Pyne Objectives: To supplement the limited staff and time resources of BPA's Division of Fish and Wildlife with the services of a professional contractor (BPNL), who can provide technical assistance on a wide variety of tasks.	Date initiated: June 1986 Results/Concusions: Nine task orders have been completed under this master task order agreement: (1) Spring Chinook Outplanting, (2) Production/Cost Records, (3) Yakima Hatchery Master Plan, (4) Yakima Flow Enhancement, (5) Yakima Hatchery Master Plan II, (6) Smolt Survival Workshop, (7) Predator/Prey Workshop, (8) Hatchery Effectiveness TWG Workshop, (9) Anadromous Fish Release Workshop, (10) Evaluation of potential application of Burnham et al. (1987) statistical methods for estimating smolt survival in the Columbia River. If the task order implements a Program project, the task order is listed in the AIWP under the appropriate Action Item.	FY 1992: Continue funding master task order agreement. Initiate individual technical assistance tasks orders as required by BPA staff.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
87-413	Fish and Wildlife Task Order Agreement, Fisheries Technical Assistance – UW Project Officer: P. Poe Objectives: To assist the limited staff and time resources of BPA's Division of Fish and Wildlife through the services of a uniquely qualified professional staff able to provide technical assistance on diverse fish and wildlife issues.	Date Initiated: September 1987 Results/Conclusions: Numerous task orders have been completed under this master task order agreement, including 1) review of Project 84-46, Development of a Vaccine for Bacterial Kidney Disease in Salmon; 2) review of BPA's anadromous fish passage assessment methods; 3) review of relevant statistics and reports on population dynamics of Hanford Reach fall chinook salmon; and 4) conduct of a smolt survival workshop. If the task order implements a Program project, the project is listed in the AIWP under the appropriate Action Item.	FY 1992: Continue funding master task order agreement. Initiate individual technical assistance task orders as required by BPA staff.
89-62	Implementation Planning Process (IPP) Coordination – PSMFC Project Officer: J. Gislason Objectives: 1. Facilitate communication among BPA, CBFWA, Policy Review Group (PRG), Scientific Review Group (SRG), and IPP Scoping Groups (SG's). 2. Ensure the timely delivery of all PRG and SRG work products required by the IPP. 3. Administer financial support (time and travel expense reimbursement) of non-Federal SRG scientists.	Date Initiated: May 1989 Results/Conclusions: 8PA has funded an IPP Coordinator position with the CBFWA through a contract with the PSMFC. Through this contract, BPA also reimburses most of the SRG members or their employers for the time that the members spend on SRG activities.	FY 1993: BPA plans to continue funding the IPP Coordination contract.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
89-72-j	Scientific Review Group (SRG) Support – DOE Proiect Officer: J. Gi slason Obiectives: To provide financial support (time and travel expense reimbursement) for SRG scientist employed by DOE.	Date Initiated: September 1989 Results/Conclusions: BPA provides financial support for one SRG member through this contract.	FY 1993: BPA plans to continue funding this contract.
89-108	Columbia River Salmon Passage Model – UW Proiect Officer: R. Starkey Obiectives: 1. Modernize downstream juvenile salmonid migration model. 2. Model analysis. 3. Model documentation. 4. Interface/aggregation with other models. 5. Project coordination.	Date Initiated: 1988 Results/Conclusion&: 1. Beta version of stochastic model (CRiSP.1) delivered November 1991, incorporating mechanistic submodels for flow modulation, project passage, pool passage, smolt release and behavior, spill, and nitrogen supersaturation. 2. Completed comparison of FISHPASS and alpha version (CRiSP.0). Completed initial calibration of CRiSP.1. Preliminary model sensitivity analysis performed on CRiSP.0. Strategy developed for sensitivity analysis of CRiSP.1. 3. Manuals for CRiSP.0 delivered May 1991. Draft CRiSP.1 Users and Theory manuals delivered August 1991. 4. Completed recoding of RFF's life cycle model (SLCM) for interface with CRiSP.1. 5. Performed CRiSP.0 runs to support ESA biological assessment. Performed CRiSP.1 runs as requested by SOR teams. Supported distributed network of 28 Sun workstations at 15 sites in Washington, Oregon, Idaho, and Washington D.C.	1. Complete CRiSP.1 – First quarter 1992. 2. Optimization and calibration of CRiSP.1 – second and third quarters 1992. 3. Complete documentation – second and third quarters 1992. 4. Aggregation with enhanced SLCM model – through fourth quarter 1992. Develop harvest model – first and second quarter 1992. 5. Support SOR process through meetings and analyze alternatives using CRiSP.1 and SLCM. Distribute and support workstations at 21 sites. 6. Quarterly and annual reports.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
91-41	Non-Treaty Storage Compensation – Idaho Power Company Project Officer: P. Poe Objectives: To rent surplus irrigation water from Idaho water banks and other sources and release it from storage during spring, summer, and/or fall months to improve anadromous fish passage conditions in the lower Snake River.	Date Initiated: May 1991 Results/Conclusions: Rented 200 KAF in 1991.	FY 1992: Continue with year 2 of pilot studies.
91-44	System Operation Review – Various Contractors Project Officer: R. Fox Objectives: To provide technical assistance to BPA for review and analysis related to System Operation Review.	Date Initiated: FY 1991 Results/Conclusions: None at this time.	FY 1992: Initiate individual contracts as required by BPA staff.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
91-67	Idaho Water Rental Pilot Project – Feasibility/Coordination Study – Resident Fish and Wildlife – IDFG Project Officer: D. Watkins Objectives: 1. Identify existing resident fish and wildlife resources and programs in the Snake, Payette and Clearwater rivers. Conduct literature review to determine the habitat conditions for resident fish and wildlife in these rivers (e.g. goose nesting below reservoirs, reservoir fisheries, Snake River sturgeon populations, river channel capacity, etc.). 2. Identify expected changes in habitat conditions in each river system resulting from various water release strategies to assist anadromous fish migration. 3. Relate expected changes in habitat conditions to potential impacts/benefits to resident fish and wildlife resources and programs. 4. Develop water release strategies that will protect or provide enhancement for resident fish and wildlife resources and programs. 5. Prepare final report.	Date Initiated: August 1, 1991 Results/Conclusions: None at this time.	FY 1992: Determine changes in habitat conditions for resident fish and wildlife due to water releases for anadromous fish and recommend the best strategy for benefit to both anadromous fish and resident fish and wildlife. Prepare final report. FY 1993-1994: Continue with Phase 2 and 3 of study to refine predicted impacts, develop and implement a monitoring plan and make future recommendations.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
91-69	Technical Assistance – Consultants Proiect Officer: R. Stoots Objectives: To supplement the limited staff and time resources of BPA's Division of Fish and Wildlife with the services of expert consultants, who can provide technical assistance and training on a wide variety of issues related to fish and wildlife habitat.	Date Initiated: 1991 Results/Conclusions: None at this time.	FY 1992: Initiate individual technical assistance contracts as required by BPA staff.
92-20	Columbia Basin Fish and Wildlife Authority Program Planning and Coordination – PSMFC Proiect Officer: M. Schneider Objectives: Enhanced coordination of the planning and implementation of the Program between the Council, BPA, and CBFWA as set out in the Coordination Grant as follows: 1. The sharing of information essential to program development. 2. The development of a Program that meets the conditions in the Act. 3. The resolution of technical and policy differences as early as possible.	Date Initiated: November 1, 1991 Results/Conclusions: The beginning months of the Coordination Grant have demonstrated improved communication and problem solving between BPA and CBFWA.	Ongoing

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
92-20 (cont.)	4. The compliance of BPA and CBFWA to terms of the IPP with respect to policy and technical issues. 5. The completion of projects that protect, mitigate and enhance fish and wildlife resources effectively minimizing time while optimizing cost/benefits ratios.		
92-27	Return of the Salmon – USFS Project Officer: T. Clune Objectives: Funding for display at the Wenatchee River Salmon Festival – USFS.	Date Initiated: July 1991	
92-31	Geographical Information System (GIS) Development Project Officer: R. Stoots Objectives: 1. Promote and use GIS within BPA's Fish and Wildlife Division. 2. Develop a GIS database that contains both fish and wildlife projects. 3. Establish and maintain ties with other GIS users as resources for data pertinent to BPA projects.	Date initiated: 1991 Results/Conclusions: None at this time.	FY 1992: Perform needs assessment and implement pilot projects.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
92-32	Life Cycle Model Development and Application to System and Subbasin Planning in the Snake River Basin – USFS/Intermountain Research Station Proiect Officer: M. Shaw Obiectives: Utilizing the SLCM: 1. Estimate relative effectiveness of proposed projects for salmon/steelhead. 2. Improve functionality of SLCM for ease of use by interested parties. 3. Improve data bases of distribution, abundance, and viability for resident and anadromous fish and their availability to fishery managers.	Date Initiated: FY 1992 Resuits/Conclusions: SLCM has been developed, and being refined with current data. Hypertext database being utilized to link SLCM components, and facilitate ease of use. Linking to recent habitat/GIS surveys in Idaho.	10/91 – Coordinate with UW on putting SLCM into contract lanuage. 12/1/91 – Revised SLCM to BPA. 1/17/92 – Provided RFF with model parameters for Idaho stocks. 7/92 – Multiple stock parameters to RFF. 11/92 – KMS Hypertext Linkage evaluation. 11/92 – User friendly Linkage of SLCM. 11/92 – Assessment of use of SLCM with GIS. 11/92 – Coordination with USFS target watershed analysis.
92-xxx	Public Education – Fish and Wildlife Habitat Proiect Officer: S. Levy Obiectives: Project will initiate new and/or enhance and expand existing programs and materials useful in creating public awareness and involvement in fish and wildlife habitat protection and restoration. The function,	Expected Start Date: FY 1992 Results/Conclusions: None at this time.	FY 1992: Education programs initiated. Modification and expansion to be considered.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
92-xxx (cont.)	operation, and effectiveness of programs developed by various Federal, state, and local agencies will be monitored, assessed, and evaluated. Education programs which are effective in fish and wildlife education within the Columbia Basin will be targeted to increase public participation in these programs and thereby increase public involvement in fish and wildlife enhancment efforts. Where these educational programs involve youth, this will also increase the potential pool of those who may seek advanced training for careers in resource management.		

III. NEW PROJECTS

None.

APPENDIX B

ENDANGERED SPECIES ACT PROJECTS

I. COMPLETED PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS
91-77	Evaluation of Literature and Information on Genetics of Snake River Spring, Summer and Fall Chinook Salmon and Lower Columbia Coho Salmon - Consultant Project Officer: S. Vigg Objectives: To review genetics literature and NMFS technical documents pertaining to Columbia River.	Date Completed: August 1991 Results/Conclusions: Four technical reports were provided by a consultant--which were included in BPA's comments to NMFS on the proposed listings under the ESA. These reports summarized the information available and made conclusions on threshold levels and the genetic status of Snake River chinook stocks and lower Columbia River coho stocks. These evaluations were relevant to the status of these stocks as Evolutionarily Significant Units (i.e., ESA species) and "threatened" or "endangered" status under the ESA.
91-52	Genetic Consultation - Consultant Project Officer: T. Vogel Objectives: Task order agreement to provide genetic consultation to BPA.	Expected Completion Date: June 1992 Results/Conclusions: None at this time.

II. FY 1992 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
89-65	Coded-Wire Tag Evaluation of Missing Hatchery Groups - USFWS Project Officer: J. Bauer Objectives: 1. Identify missing production groups of salmon for Columbia River hatcheries. 2. Recover, decode and record survivability data. 3. Evaluate hatchery production programs.	Date Initiated: November 1989 Results/Conclusions: All groups for FY 1990 have been tagged. All groups for 1991 and 1992 have been tagged.	FY 1932: Missing production groups to be tagged. FY 1993: Missing production groups to be tagged and evaluation to begin. FY 1994: Final tagging of missing production groups while evaluation continues. FY 1995-1996: Evaluation continues.
89-66	Coded-Wire Tag Evaluation of Missing Hatchery Groups - WDF Project Officer: J. Bauer Objectives: 1. Identify missing production groups of salmon for Columbia River hatcheries. 2. Recover, decode and record survivability data. 3. Evaluate hatchery production programs.	Date Initiated: September 1989 Results/Conclusions: All fish groups scheduled for tagging in 1989-91 were completed. All groups for 1992 have been tagged.	FY 1992: Missing production groups to be tagged. FY 1993: Missing production groups to be tagged and evaluation to begin. FY 1994: Final tagging of missing production groups while evaluation continues. FY 1995-1996: Evaluation continues.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
89-69	Coded-Wire Tag Evaluation of Missing Hatchery Groups – ODFW Project Officer: J. Bauer Objectives: 1. Identify missing production groups of salmon for Columbia River hatcheries. 2. Recover, decode, and record survivability data. 3. Evaluate hatchery production programs.	Date Initiated. September 1989 Results/Conclusions: All fish groups scheduled for tagging in 1989-91 were completed. Groups for 1992 have been tagged.	FY 1992: Missing production groups to be tagged. FY 1993: Missing production groups to be tagged and evaluation to begin. FY 1994: Final tagging of missing production groups while evaluation continues. FY 1995-1996: Evaluation continues.
90-61	Research on Fungal Infections of Spring and Summer Chinook Salmon – UW Project Officer: A. Ruger Objectives: 1. Identification of fungi infecting spring chinook salmon in the Columbia River System. 2. Develop bi o-control program. 3. Develop DNA identification techniques. 4. Determine primary or secondary pathogenesis.	Date Initiated: December 7, 1990 Results/Conclusions: Identification of of potential parasite of Saprolegnia. Collection of 900 isolates.	Collection of isolates and initial work on identification of pure isolates. Phase I completion – June 1992. Phase II – objectives 2, 3. 4 to begin June 1992.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
91-51	Analysis of Relationship of Riverflow to the Migratory Travel Time and Survival of Juvenile Salmonids (for Endangered Species Act) - UW/ Consultant Project Officer: P. Poe Objectives: Phase I: 1. Assess PIT tag data. 2. Assess freeze brand data. 3. Assess coded-wire tag data. 4. Participate in development analytical procedures for estimating smolt survival. 5. Continue to provide technical input on research plan for Project 91-17.	Date Initiated: February 1991 Results/Conclusions: Report identifying factors contributing to mortality above Lower Granite Dam completed October 1991.	FY 1992: Complete objectives of Phase I and report results. Proceed with Phase II if applicable.
91-65	Umatilla Fall Chinook Marking Program - ODFW Project Officer: J. Bauer Objectives: 1. Mark Umatilla salmon for identification so the strays can be removed at Ice Harbor Dam. 2. Evaluate right ventral fin clip (RV) mortality rate. 3. Evaluate difference between RV and body tag mortalities. 4. Evaluate differences between RV and adipose-CWT-RV mortality rates.	Date Initiated: April 1991 Results/Conclusions: Fin-clipped and tagged 3.4 M fall chinook (ChF). The fin-clipped smolts were released. The 5.9m ChF scheduled for release in 1992 will be tagged.	1. FY 1992: Fin clip and tag, 6.0 M ChF. Fin clip and tag, 1.4 M summer chinook (ChS). 2. FY 1993: Fin clip and tag, 7.0 M ChF. Fin clip and tag, 1.4 M ChS.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
91-66	**Ice Harbor/Lower Granite Fish Trapping Improvements** **Proiect Officer: J. Marcotte** **Obiectives:** Evaluate current trapping operations and physical facilities for trapping. Determine operational adjustments and/or physical improvements that would allow for capture and identification of all salmon. Non-Snake River fish would be prevented from passing these facilities. Operational adjustments would be implemented as soon as feasible.	**Expected Start Date:** June 1991 Results/Conclusions: **None at this** time.	1. **FY 1991: Planning and coordination.** 2. FY **1992: Preliminary and final design.** 3. **FY 1993: Construction.**
92-22	**Assess the Impacts of Hatchery Production on Wild Fish by Evaluating Hatchery and Wild Fish Behavior and Physiology - NMFS** **Proiect Officer: T. Vogel** **Obiectives:** 1. **Identify difference in physiological parameters and tempera1 development of wild/ natural fish and hatchery fish.** 2. **Identify differences in behavior of wild/natural and hatchery fish through** smolt-ification and adult reproduction.	**Expected Start Date: FY 1992** **Results/Conclusions: None at this time.**	**FY 1992 - Determine feasibilty** **FY 1993 - If feasible and practical, fully implement and set out year milestones and completion.**

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES
92-22 (cont.)	3. Assess whether any observed differences in behavior of hatchery fish impact wild/natural stocks.		
92-24	Increased Levels of Fishery Harvest Law Enforcement and Public Awareness for Anadromous Salmonids in the Columbia River – CRITFC, ODSP, WDF/WDW, IDFG Project Officer: S. Vigg Objectives: 1. Increase levels of fishery harvest law enforcement throughout the Columbia and Snake River Basins. 2. Increase public awareness on the declines of Columbia Basin anadromous salmonids, and the need to reduce illegal harvest. 3. Improve adult spawning escapement of anadromous salmonids by reducing illegal take. 4. Evaluate the effectiveness of the program.	&Initiated: January 1992 Results/Conclusions: 1. Increased law enforcement was activated in September 1991 by authorization of pre-award expenditures of $50,000 to each grant recipient. 2. Four grants were put in place effective January 1, 1992, for the initiation of the comprehensive law enforcement program.	September 9, 1991: Initiate pre-award activities. January 1, 1992: Start all components of Program. March 1, 1992: Hit-e personnel. March 1, 1992: Purchase equipment. March 1 – December 31, 1992: Increase levels of enforcement. December 31, 1992: Evaluate first year of program. December 31, 1994: Demonstration phase of program completed.
92-35	Genetic Variation in DNA of Coho Salmon from the Lower Columbia River – UM Project Officer: D. Watkins Objectives: Develop the tech–	Date Initiated: March 1, 1992 Results/Conclusions: None at this time.	March 1, 1992: Start project.

PROJECT NUMBER	TITLE	PROJECT STATUS	-SCHEDULE AND MILESTONES
92-35 (cont.)	niques that will provide the information needed to determine if Lower Columbia River coho salmon represent a "species" under the ESA. 1. Test for mtDNA genotypes that are unique to LCR coho salmon. 2. Test for genetic variation in mtDNA of coho salmon using existing probes developed from rainbow trout. 3. Use the polymerase chain reaction to amplify a number of single-gene regions that will be tested for restriction fragment patterns in coho salmon.		

(3633W)

APPENDIX C

Responses to Comments on the FY 93 Draft Annual Implementation Work Plan

Written and oral comments were received during April and May 1992. We have assigned the responses development to either the appropriate Scoping Group (SG) Chairperson or management. The comments covered a wide range of topics and t-equired a coordinated effort. It is BPA's undertaking throughout the IPP to be responsive to the concerns of all interested parties.

Comments are arranged by topic. In some cases, several respondents voiced the same concerns. In these cases, we have addressed the fundamental issue at hand. We appreciate the time and effort taken in commenting on the draft AIWP.

GLOBAL ISSUES

Several respondents were concerned about the basic format of the AIWP, e.g.:

- The present format reflects the 1987 Columbia River Basin Fish and Wildlife Program (Program) format and does not mirror the recent changes in the Columbia River Basin or the planning and review needs of BPA, the PRG. etc.

RESPONSE:

- Immediately following release of the final 93 AIWP, the BPA IPP Coordinator will begin redesigning and reformatting the AIWP. This effort will involve all interested parties. BPA's IPP Coordinator will be soliciting discussions and input in the near future.

PLACEHOLDERS

- Comments on draft AIWP and 93 budget "placeholders" addressed selection of projects for these placeholders. CBFWA submitted a separate draft of an AIWP with suggested projects for the placeholders.

RESPONSE:

- It is BPA's intention to fully utilize the IPP to openly discuss the selection and prioritization of all projects which will utilize placeholder budget items. A complete list of all projects suggested by the CBFWA have been sent to the appropriate SG for review. If the SG's recommend project additions, the AIWP will be appropriately amended.

PROCUREMENT

Comments on the Procurement process:

- **The BPA Procurement process would benefit from increased competition in the project awardee selection process.**

RESPONSE:

- **BPA agrees with the benefits associated with competitive Procurements. Any contracts that are awarded on a non-competitive basis must be fully justified and in accordance with the strict guidelines as set forth in the Bonneville Acquisition Guide (BAG) regulations. Additionally, BPA and the CBFWA recently developed a modification to IPP Step 2. Implementation of this modification will open the Procurement process by issuing an "Opportunity Notice" when the PRG has suggested BPA fund multiple projects to implement a single Program measure. When an Opportunity Notice is initiated by BPA, it will receive wide distribution. Suggested project ideas originate from any interested party.**

CRITERIA

Comments on criteria:

- **The AIWP does not indicate if or how PRG criteria were applied in the development of the AIWP.**

RESPONSE:

- **The Wildlife SG developed criteria two years ago and has applied them in the past two AIWP's. The Habitat SG is currently finalizing criteria. In May 1991 the Artificial Propagation (AP) SG reviewed ongoing, fish health and Artificial Propagation in RPA F1113 at the request of the PRG. The results are in FY 92 AIWP page 136. The PRG, in their outline of the draft AIWP, has not instructed the SG to review ongoing projects. Furthermore, each SG Chair was asked to address this issue, their separate responses are as follows:**

SCOPING GROUP RESPONSES:

GLOBAL:

Ongoing projects within the Program were implemented under various criteria established by the Council, Fish and Wildlife agencies and Tribes, BPA procurement regulations and Program objectives and policies. These projects are under continual review by BPA management, Project Managers, Project Biologists, Project Engineers and Contracting Officers. These reviews include consideration of all of the criteria suggested by the PNUCC, BPA policy and management criteria, and procurement regulations. Additionally, the appropriateness of expending funds under the Administrator's authority is assessed with respect to the various laws and regulations governing such expenditures.

Selection criteria and criteria for implementing new projects and assessing ongoing projects undergo continual review and updating. Some of the ongoing work by BPA staff and contractors relates directly to the establishment and refinement of program selection criteria. As new information is developed and appropriate review verifies the new information, evaluation and selection criteria are updated.

BPA embraces the concepts of adaptive management. It is BPA's intention to implement the Program expeditiously, prudently, and in a cost-effective manner. However, we recognize the importance of increasing our knowledge base by managing adaptively.

SUPPLEMENTATION AND GENETICS:

The Supplementation and Genetics Scoping Group (S&GSG) have adopted interim criteria for evaluation and selection of projects. However, information to establish these criteria were scarce. Therefore BPA and the Council to rely on the Regional Assessment of Supplementation Project (RASP). This project's objectives were, in part, to provide guidelines for the development of supplementation projects. When these guidelines are peer reviewed and generally accepted by the Region, they will be incorporated into criteria by the S&GSG. Along these same lines, guidelines for genetic risk assessment, genetic principles for artificial production, and genetic monitoring and evaluation requirements are under development. When completed, these results will also be included in selection and evaluation criteria that will provide the means not only to select new projects, but, reassess ongoing efforts. The following criteria has been developed by BPA Supplementation and Genetics Scoping Groups for the purpose of prioritizing and evaluating projects:

1. Proposed project addresses high priority supplementation research objectives.

2. The project has a high likelihood of being implemented on schedule, in a timely manner, and being successful. Experimental approaches are available or can be developed.

3. Addresses supplementation research objectives that are not currently being addressed or need additional replication.

4. Results of the project will have widespread application throughout the Columbia Basin.

5. Cost of project appears commensurate with value of proposed work and applicability of results.

6. Project relates to critically depressed stocks or will make a significant contribution to natural production in the Columbia Basin.

ANADROMOUS FISH HABITAT:

Anadromous fish habitat projects for FY 1993 BPA-funding will be selected by September 15, 1992, using the criteria developed by the IPP Habitat SG under Phase II of the Council's Program amendment process. Proposals from a variety of sources, including projects proposed in the ISP, those received under Phase I of the Council's amendment process and ongoing projects requiring further work will be evaluated and ranked by the SG.

The following criteria have been developed by the Bonneville Power Administration's (BPA) Anadromous Fish Habitat Scoping Group for the purpose of prioritizing fish habitat projects for BPA-funding under the Council's Fish and Wildlife Program, beginning in fiscal year 1993. Stream habitat rehabilitation is a key element in rebuilding plans for anadromous fish populations in many watersheds throughout the Columbia River Basin. Future stream habitat rehabilitation efforts must recognize the interrelationship of stream channels, riparian areas, headwaters, and uplands. These criteria emphasize the importance of a watershed perspective to fish production issues and will assist the group in selecting habitat projects that have well defined and measurable biological objectives and that treat the problems, not the symptoms, affecting fish production within the watershed.

BASINWIDE PERSPECTIVES

- Habitat projects affecting weak stocks (such as those listed in the Integrated System Plan's list of stocks of high or highest concern; stocks listed in the American Fisheries Society report as at high or moderate risk of extinction; or stocks on State or Federal threatened/endangered lists> receive highest priority. (Points: meets = 1; fails to meet = 0)

- Projects are in compliance with land management rules and regulations and complement the fish and wildlife policies, plans, and programs of the region's state and federal fisheries and land management agencies, Tribes, and the Northwest Power Planning Council's Fish and Wildlife Program. /Points: meets = 1; fails to meet = 0/

- Projects affecting indigenous/naturalized spawning populations are given greater priority over projects affecting introductions of non-indigenous populations. Populations are prioritized as follows:

  - Existing indigenous populations. (Points: meets = 4)

  - Existing natural populations. (Points: meets = 3)

  - Reintroduction of appropriate stocks in historical areas. (Points: meets = 2)

  - Introduction of stocks into areas with no historical use. (Points: meets = 1)

- **Projects (including opportunities for preplanning and pre-project/baseline data collection) will be prioritized for funding as follows:**

  - **Habitat protection/restoration projects, such as fencing of riparian areas, improvement of instream flows, enclosures, land exchanges, fee-lease agreements or acquisitions, restoration of degraded riparian or instream habitat, replanting of native vegetation, or creation of new habitat. (Points: meets = 3)**

  - **Tributary passage projects addressing intermittent or seasonal migration barriers (excludes man--made artificial barriers>. (Points: meets = 2)**

  - **Habitat research and/or critical data gaps (excludes monitoring and evaluation). (Points: meets =1)**

WATERSHED PERSPECTIVES

- **Proposals complement the biological goals and objectives of a Subbasin Plan or other comprehensive fisheries management plan. (Points: meets = 1; fails to meet = 0)**

- **Current or planned land management activities in the watershed do not negate project benefits.**

  - **Project objectives and watershed activities are consistent. (Points: meets = 1; fails to meet = 0)**

  - **Land management activities are consistent with protecting habitat investments. (Points: meets = 1; fails to meet = 0)**

  - **Existing and planned water withdrawals do not jeopardize projects. (Points: meets = 1; fails to meet = 0)**

- **Sequencing of habitat activities having near-term effects versus long-term effects within a watershed is critical to the success of watershed goals.**

  - **Activities are sequenced properly to protect the overall benefits expected from all projects in the watershed. (Points: meets = 1; fails to meet = 0)**

  - **Direct or near term activities such as instream restoration projects are undertaken only where other long term measures, such as changes in land management practices or recruitment of large woody debris (LWD), are under development or will occur over a longer time-frame. (Points: meets = 1; fails to meet = 0)**

  - **Project prescribe long term activities that favor restoration of natural processes. (Points: meets = 1; fails to meet = 0)**

PROJECT SPECIFIC CONSIDERATIONS

- **Project proposals reflect thorough planning and include the following critical elements:**

  - **Relationship of project objectives to specific life history needs of the target population is described.**
    (Points: meets = 1; fails to meet = 0)

  - **Rationale and analysis is provided for the choice of specific actions prescribed. (Points: meets = 1; fails to meet = 0)**

  - **Benefits to target populations are described.**
    (Points: meets = 1; fails to meet = 0)

  - **Documentation of habitat/population information used in development of project objectives is provided or referenced.**
    (Points: meets = 1; fails to meet = 0)

  - **Project objectives are realistic and measurable.**
    (Points: meets = 1; fails to meet = 0)

  - **A monitoring and evaluation program is specifically designed to track progress towards meeting project objectives.**
    (Points: meets = 1; fails to meet = 0)

  - Pre-implementation **baseline information (where available> is compiled and includes:**

    a. **Historical fish population data, watershed, and riparian habitat condition.**
       (Points: meets = 1; fails to meet = 0)

    b. **Relationship of project to basinwide programs such as watershed-scale surveys or evaluations is defined.**
       (Points: meets = 1; fails to meet = 0)

    c. **Current fish production/carrying capacity estimates.**
       (Points: meets = 1; fails to meet = 0)

  - **An operation and maintenance program is identified for protection of project benefits.**
    (Points: meets = 1; fails to meet = 0)

  - **A general risk analysis is provided which describes and analyzes the level of potential technical, biological, and liability uncertainties or negative impacts for the chosen alternative habitat activity.**
    (Points: meets = 1; fails to meet = 0)

- **Project is cost-effective: The chosen alternative action meets the objectives of the project at the least cost.**

  - **Other action items considered but not chosen are described.**
    (Points: meets = 1; fails to meet = 0)

- Total costs, including planning, implementation, operation and maintenance estimates, are described for the effective life-span of the project. (Points: meets = 1; fails to meet = 0)

- Actions which address multiple stocks..

  - A higher priority is given to habitat actions addressing more than one stock. (Points: meets = 1; fails to meet = 0)

  - Actions designed for one stock do not jeopardize health/status of other stocks within the project area. (Points: meets = 1; fails to meet = 0)

The criteria developed by the SG, comprised of technical experts from the Region's Fisheries and Land Management agencies, Tribes, Utility Groups, and other interested parties, give highest priority to weak stocks and will be continually refined and validated as new information is developed. Stream habitat rehabilitation is a key element in rebuilding plans for anadromous fish populations in many watersheds throughout the Columbia River Basin. Future stream habitat rehabilitation efforts must recognize the interrelationship of stream channels, riparian areas, headwaters, and uplands. These new criteria emphasize the importance of a watershed perspective to fish production issues (as described in' Field Reviews of BPA-funded projects by Platts, Beschta, and Kaufmann) and will assist the SG in selecting habitat projects that have well defined and measurable biological objectives and that treat the problems, not the symptoms, limiting fish production within the watershed.

RESIDENT FISH:

Resident fish projects above Hells Canyon Dam are waiting decision from the Council regarding the proper funding entity. However, in an effort to move this process forward BPA is funding three small projects. No expansion of this program will be made pending the Council's decision.

The Resident Fish Expense budget reflects the costs of implementing the Council's Program. When Phase IV has been completed, the budget will be adjusted accordingly.

ARTIFICIAL PROPAGATION:

BPA's goals and objectives for artificial production are the same as the regional resource managers which is to protect and increase weak stocks, maximize natural production and supplement with artificial production where proper and necessary.

We believe that artificial production is an important tool in the recovery of the fish resource of the Columbia River Basin and is consistent with the Draft National Marine Fisheries Service Role for Artificial Production in the Recovery Plan.

We propose to examine each project for this consistency to our principles. We believe that the attached list of criteria utilized by the Artificial Production Scoping Group in their recommendations to BPA through the PRG for the acceptance and funding allow full consideration of all comment criteria received.

Artificial Propagation Scoping Group Project Rating Criteria:

1. Project is consistent with the Council's Program and Recovery Program Amendments.

2. Project is consistent with the Council's Wild Fish management goal.

3. Project is consistent with the Council's gene conservation goal.

4. Project is consistent with ESA.

5. Project must deal with species of concern.

6. Project is consistent with current knowledge.

7. Project either increases or leads to an increase in the production of wild, natural or artificial adult fish.

8. Project leads to improvement in fish health or operation of hatcheries.

9. Results are measurable.

10. Project is cost-effective.

WILDLIFE:

- Criteria and Project Selections: It is not BPA's intent to fund wildlife projects which may cause harm to locally adapted populations of wild fish; are not cost-effective; unnecessarily duplicates efforts undertaken elsewhere; and violates the "in lieu" funding provision of the Northwest Power Act. It is our intent to initiate funding on those projects considered as "in the pipeline," i.e., the top ranked proposals for FY 1992 as recommended to BPA by the Wildlife SG and the Policy Review. This funding will be forthcoming only when BPA receives assurances from the project proposer that a trust agreement will be credited with funds expended for Phase I. It is expected that implementation of the projects will occur by decision of the implementor after a trust has been established.

COST-EFFECTIVENESS

The DSI's general comments regarding project review are consistent with the direction we are already taking in preparing to implement system-wide cost-effectiveness analysis. We are working to improve project selection criteria and to establish a project proposal process that provides the data needed to evaluate all proposed measures in a cost-effectiveness context. Because the Council is moving toward rebuilding schedules, and expanding the goals of the Program (increase runs and maintain biological diversity>, BPA will respond by expanding our analytical capability to dynamic cost-effectiveness analysis. We expect to have the analytical capability in place by the time we implement the new project evaluation criteria. As demonstrated in the habitat project evaluation criteria, we intend to not only account for costs and biological effectiveness over the rebuilding schedule time horizon, but also to compile information that will allow us to better address risk and uncertainty.

With regard to the specific reference to the CIS project, we recognize that performance on that project has been less than satisfactory, and that costs have consistently exceeded the cost projections. We are dealing with these issues in several ways:

1 We have required completion of Phase II work before funding Phase III. We are reviewing the proposed CIS plan to determine which elements have highest priority. The timeframe for CIS implementation is also being reviewed.

2 We have proposed a change in project management. This request was not well received by CRITFC and CBFWA. We are attempting to resolve the issue in a way that ensures that BPA concerns will be addressed in an ongoing manner, project management is improved, CIS development is closely tracked and proceeds in a timely manner, and future cost overruns are minimized.

3 We have proposed cost-sharing with the state agencies and Tribes participating in CIS. This would involve a shift to cost sharing as the project is fully implemented. In the short term, CIS prototyping would be funded primarily by BPA.

We will be updating the PRG on CIS periodically. Copies of draft and final CIS documents are available on request. These documents include a Phae II Summary, a Proposed Project Plan and Work Statement, budget estimates and staff requirements, a data catalog, a report on information needs, two options reports, and the Stock Summary Reports.

WILDLIFE TRUST:

There was concern that the effect of developing wildlife trusts in favor of project-by-project implementation could be loss of some project opportunities.

While proceeding with negotiations on Trust Agreements BPA does not intend to lose mitigation opportunities that have been brought forward to date via the IPP. BPA is moving aggressively forward with Phase I (advance design> activities on projects proposed to date. Should a situation arise that jeopardizes the opportunity to mitigate BPA is prepared to aggressively acquire options or there necessary actions to protect the mitigation situation. In the event Trusts are unobtainable, BPA is prepared to continue on mitigation for the wildlife program through the IPP process.

WILDLIFE PROJECT OMISSION:

- Burlington Bqttoms: We apologize for the omission. Burlington Bottoms should have been in the FY 1993 AIWP and it is an oversight on our part. This was a "lost opportunity" project and was acquired in early FY 1992. Current efforts are to initiate the development of a management plan and habitat inventory. These activities would be expected to be completed by late 1993 or early 1994 and are now included in the AIWP for FY 1993.

(3823W)